

Mathematics - primary 4
Second term

2023 / 2024

Unit 9: Fractions

Lessons 1 - 3	<ul style="list-style-type: none">• Composing and decomposing fractions
Lessons 4	<ul style="list-style-type: none">• Types of fractions
Lessons 5 - 7	<ul style="list-style-type: none">• Adding and subtracting fractions
Lessons 8	<ul style="list-style-type: none">• Comparing and ordering fractions
Lessons 10 - 11	<ul style="list-style-type: none">• Benchmark fractions
Lessons 9, 12, 13, 14	<ul style="list-style-type: none">• Multiplying fractions by 1 or whole number• Equivalent fractions

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Lessons
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- Types of angles in a circle

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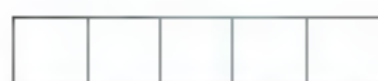
- Drawing angles using a protractor
- Classifying triangles using geometric tools

Unit 9: Fractions

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Fraction:








- **Fraction** represents the parts of a whole.



$\frac{3}{5}$ ← **Numerator**
 $\frac{3}{5}$ ← **Denominator**

- **Numerator:** The number of equal parts you have (shaded parts).
- **Denominator:** The number of all equal parts.
- **Unit fraction:** a fraction has a numerator of 1. EX: $\frac{1}{5}$, $\frac{1}{2}$
- **Proper fraction:** a fraction its numerator is less than its denominator.
 EX: $\frac{3}{7}$, $\frac{1}{4}$
- All unit fractions are proper fractions.

Writing and reading fraction:

Model of fraction	Writing fraction	Reading fraction
	1	One whole
	$\frac{1}{2}$	one half
	$\frac{1}{3}$	one third
	$\frac{1}{4}$	one fourth
	$\frac{1}{5}$	one fifth
	$\frac{1}{6}$	one sixth
	$\frac{1}{7}$	one seventh

$\frac{1}{8}$										$\frac{1}{8}$	one eighth
$\frac{1}{9}$										$\frac{1}{9}$	one ninth
$\frac{1}{10}$										$\frac{1}{10}$	one tenth

 **Examples:**

$\frac{3}{4}$	three fourths
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$\frac{5}{7}$	five sevenths
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 **Composing fractions:**

- means put fractions together to make a new fraction.

$$\begin{array}{c}
 \text{Diagram: 4 circles, each divided into 4 equal quadrants. The first 3 circles have 1 quadrant shaded yellow. The 4th circle has all 4 quadrants shaded yellow.} \\
 \frac{1}{4} + \frac{1}{4} + \frac{1}{4} = \frac{3}{4}
 \end{array}$$

 **Examples:**

$$\begin{array}{ll}
 \bullet \frac{1}{4} + \frac{1}{4} + \frac{1}{4} = \frac{3}{4} & \bullet \frac{1}{3} + \frac{1}{3} + \frac{1}{3} = \frac{3}{3} = 1 \\
 \bullet \frac{2}{7} + \frac{3}{7} = \frac{5}{7} & \bullet \frac{2}{5} + \frac{1}{5} + \frac{2}{5} = \frac{5}{5} = 1
 \end{array}$$


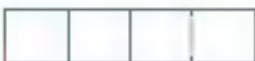



 **Decomposing fractions:**

- means breaking a fraction into parts.

 **Examples:**

$$\begin{array}{ll}
 \checkmark \text{ By using unit fractions: } & \bullet \frac{5}{6} = \frac{1}{6} + \frac{1}{6} + \frac{1}{6} + \frac{1}{6} + \frac{1}{6} \\
 \checkmark \text{ By using proper fractions: } & \bullet \frac{5}{6} = \frac{2}{6} + \frac{3}{6} \qquad \bullet \frac{5}{6} = \frac{2}{6} + \frac{2}{6} + \frac{1}{6}
 \end{array}$$

1. Complete:

	Model	Numerator	Denominator	Fraction form	Word form
1)	
2)	
3)	
4)	
5)	

2. Decompose each of the following fractions into unit fractions:

1) $\frac{3}{5} =$

4) $\frac{2}{6} =$

2) $\frac{4}{7} =$

5) $\frac{4}{4} =$

3) $\frac{7}{11} =$

6) Two fifths =

3. Decompose each of the following fractions in two ways:

1) $\frac{5}{7} =$ Or

2) $\frac{4}{8} =$ Or

3) $\frac{7}{9} =$ Or

4) $\frac{3}{4} =$ Or

5) $\frac{6}{8} =$ Or

4. Complete:

1) The shaded parts = $\frac{\quad}{\quad}$ 

2) The fraction which represents the opposite figure = $\frac{\quad}{\quad}$ 


3) The numerator of the fraction $\frac{5}{9}$ is $\frac{\quad}{\quad}$

4) The denominator of the fraction $\frac{7}{11}$ is $\frac{\quad}{\quad}$

5) The number of unit fractions in $\frac{8}{9}$ is $\frac{\quad}{\quad}$

6) The number of unit fractions in $\frac{11}{8}$ is $\frac{\quad}{\quad}$

7) The number of unit fractions in one whole = $\frac{\quad}{\quad}$ fifths

8) The number of unit fraction which represents point E is $\frac{\quad}{\quad}$ 

9) $\frac{1}{5} + \frac{1}{5} + \frac{1}{5} + \frac{1}{5} = \frac{\quad}{\quad}$

10) $\frac{1}{8} + \frac{1}{8} + \frac{1}{8} = \frac{\quad}{\quad}$

11) $\frac{5}{10} = \frac{2}{10} + \frac{1}{10} + \frac{\quad}{\quad}$

12) $\frac{5}{5} = 1$

5. Answer each of the following:

1) Decompose the following fraction: $\frac{3}{5}$

2) Samira cut a cake into 8 equal parts and ate one part of them. What is the fraction that represents the remaining parts?

6. Choose the correct answer:

1) The numerator of the fraction $\frac{2}{5}$ is $\frac{\quad}{\quad}$

a. 1

b. 2

c. 5

d. 7



2) Which of the following represents a unit fraction?

a. $\frac{7}{4}$

b. $\frac{7}{7}$

c. $\frac{4}{7}$

d. $\frac{1}{7}$



3) Five eighths =

a. $\frac{5}{8}$

b. $\frac{5}{13}$

c. $\frac{8}{5}$

d. $\frac{8}{13}$



4) $\frac{5}{\quad} = 1$

a. 2

b. 3

c. 5

d. 10



5) Which of the following expression is equal to $\frac{7}{9}$?

a. $\frac{1}{3} + \frac{1}{3} + \frac{5}{3}$

b. $\frac{2}{4} + \frac{5}{5}$

c. $\frac{1}{9} + \frac{2}{9} + \frac{2}{9}$

d. $\frac{4}{9} + \frac{3}{9}$



6) Which of the following expressions is the same as $\frac{5}{6}$?

a. $\frac{1}{6} + \frac{2}{6} + \frac{3}{6} + \frac{4}{6} + \frac{5}{6}$

b. $\frac{1}{6} + \frac{1}{6} + \frac{1}{6} + \frac{1}{6} + \frac{1}{6}$

c. $\frac{5}{6} + \frac{5}{6} + \frac{5}{6} + \frac{5}{6} + \frac{5}{6}$

d. $\frac{1}{5} + \frac{1}{5} + \frac{1}{5} + \frac{1}{5} + \frac{1}{5} + \frac{1}{5}$



7) $\frac{3}{7} = \frac{1}{7} + \frac{1}{7} + \dots$

a. $\frac{1}{7}$

b. $\frac{1}{5}$

c. $\frac{5}{7}$

d. $\frac{7}{7}$



8) $\frac{3}{8} = \dots$

a. $\frac{1}{4} + \frac{1}{4} + \frac{1}{4}$

b. $\frac{2}{8} + 1$

c. $\frac{1}{8} + \frac{1}{8} + \frac{2}{8}$

d. $\frac{1}{8} + 2$



9) $\frac{1}{5} + \frac{1}{5} + \frac{1}{5} + \frac{1}{5} + \frac{1}{5} = \dots$

a. $\frac{3}{7}$

b. $\frac{5}{12}$

c. 1

d. $\frac{3}{5}$



10) The number of sixths in one whole =

a. 1

b. 5

c. 6

d. 4



11) $1 = \frac{1}{7} + \frac{2}{7} + \dots$




a. $\frac{1}{7}$

b. $\frac{2}{7}$

c. $\frac{3}{7}$

d. $\frac{4}{7}$

Types of fractions:

• Proper fraction:	• Improper fraction	• Mixed number
• Its numerator is less than ($<$) its denominator	• Its numerator is greater than ($>$) or equal ($=$) its denominator	• Formed from a whole number and a proper fraction
EX: $\frac{3}{5}$	EX: $\frac{7}{4}$	EX: $1\frac{3}{4}$
		

Notes:

- Any proper fraction is less than 1.
- Any improper fraction is greater than or equal to 1.
- Any whole number (except 0) can be written in the form of an improper fraction.

$$\text{EX: } 1 = \frac{1}{1} = \frac{2}{2} = \frac{3}{3} = \dots$$


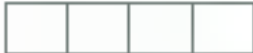




$$\text{EX: } 5 = \frac{5}{1} = \frac{10}{2} = \frac{15}{3} = \dots$$

- Any mixed number can be written as improper fraction and vice versa.

Changing between improper fraction and mixed number:

• Change from mixed number to improper fraction:	• Change from improper fraction to mixed number:
Multiply then add	Divide
EX: $2\frac{1}{3} \rightarrow \frac{7}{3}$	EX: $\frac{5}{2} = 2\frac{1}{2}$

1 Color to represent the following fractions

Fraction	Model
1) $3\frac{1}{5}$	
2) $\frac{3}{4}$	
3) $2\frac{1}{3}$	
4) $\frac{8}{6}$	
5) $\frac{7}{2}$	
6) $\frac{6}{3}$	

2 Write which is proper fraction improper fraction mixed number

1) $2\frac{1}{3} =$

3) $\frac{7}{4} =$

5) $\frac{1}{8} =$

2) $\frac{6}{10} =$

4) $1\frac{1}{2} =$

6) $\frac{3}{3} =$

3 Write as an improper fraction

1) $3\frac{1}{2} =$

3) $4\frac{1}{5} =$

5) $2\frac{1}{6} =$

2) $5\frac{1}{4} =$

4) $3\frac{2}{5} =$

6) $5\frac{1}{2} =$

4 Write as a mixed number

1) $\frac{7}{2} =$

3) $\frac{13}{4} =$

5) $\frac{5}{3} =$

2) $\frac{17}{5} =$

4) $\frac{23}{3} =$

6) $\frac{14}{6} =$

5 Complete

- 1) The proper fraction has the numerator **less** than the denominator
- 2) $\frac{7}{2}$ is a / an **improper** fraction
- 3) $3\frac{5}{4} =$ **$\frac{17}{4}$** [in the form of an improper fraction]
- 4) $2\frac{1}{4} =$ **$\frac{9}{4}$** [as an improper fraction]
- 5) $3\frac{2}{7} =$ **$\frac{23}{7}$** [as an improper fraction]
- 6) $4\frac{3}{5} =$ **$\frac{23}{5}$**
- 7) $\frac{17}{3} =$ **$5\frac{2}{3}$** [in the form of a mixed number]
- 8) $\frac{7}{5} =$ **$1\frac{2}{5}$** [as a mixed number]
- 9) $\frac{20}{3} =$ **$6\frac{2}{3}$** [as a mixed number]
- 10) $\frac{17}{4} =$ **$4\frac{1}{4}$** [as a mixed number]
- 11) $\frac{5}{2} =$ **$2\frac{1}{2}$**

6 Choose the correct answer

- 1) Which of the following is a proper fraction?
 a $\frac{3}{9}$ b $\frac{5}{2}$ c $1\frac{1}{2}$ d $\frac{19}{18}$
- 2) Which of the following is an improper fraction?
 a $\frac{4}{9}$ b $\frac{1}{6}$ c $1\frac{1}{5}$ d $\frac{4}{3}$
- 3) Which of the following is a mixed number?
 a $\frac{11}{7}$ b $\frac{8}{3}$ c $2\frac{3}{5}$ d $\frac{2}{9}$

Unit
1

4) The opposite model represents



a $1\frac{1}{3}$

b $\frac{5}{5}$

c $\frac{4}{5}$

d $\frac{5}{4}$

Unit
2

5) $4\frac{1}{2} =$ [as an improper fraction]

a $\frac{3}{2}$

b $\frac{7}{2}$

c $\frac{9}{2}$

d $\frac{9}{4}$

Unit
3

6) $\frac{20}{7} =$ [as a mixed number]

a $3\frac{1}{7}$

b $2\frac{6}{7}$

c $2\frac{1}{7}$

d $1\frac{6}{7}$

Unit
4

7) Which of the following mixed numbers is equal to $\frac{6}{5}$?

a $1\frac{1}{2}$

b $1\frac{1}{12}$

c $1\frac{1}{5}$

d $1\frac{1}{6}$

Unit
5

8) $\frac{9}{5}$ is a / an fraction

a Unit

b Proper

c Denominator

d Improper

Unit
6

9) $\frac{3}{10}$ is a / an fraction

a Mixed

b Improper

c Whole

d Proper

Unit
7

10) The proper fraction is which its numerator its denominator

a Less than

b Less than or equal

c Greater than

d Greater than or equal

Unit
8

11) The mixed number $3\frac{1}{2}$ is equivalent to

a $\frac{9}{2}$

b $\frac{5}{2}$

c $\frac{3}{2}$

d $\frac{7}{2}$

Unit
9

12) Which of the following fractions is greater than 1?

a $\frac{4}{6}$

b $\frac{7}{6}$

c $\frac{5}{8}$

d $\frac{9}{10}$



1 Find the result



1) $\frac{3}{5} + \frac{2}{5} =$



2) $2\frac{4}{9} + 1\frac{2}{9} =$



3) $2\frac{3}{5} + 1\frac{4}{5} =$



4) $\frac{10}{12} + \frac{1}{12} + 3 + 2 =$



5) $4 + \frac{4}{8} + 2 + \frac{5}{8} =$



6) $\frac{4}{9} + \frac{1}{9} + \frac{7}{9} + 4 =$



7) $2 + 2 + \frac{3}{5} + \frac{3}{5} =$



8) $\frac{3}{6} + 5 + \frac{5}{6} + 2 =$

Example

9) $\frac{2}{7} + \frac{3}{7} =$

Example

10) $\frac{5}{12} + \frac{2}{12} + \frac{6}{12} =$

Example

11) $1 + 1\frac{1}{6} =$

Example

12) $5\frac{5}{6} + 2\frac{1}{6} =$

Example

13) $3\frac{2}{5} + 1\frac{1}{5} =$

Example

14) $2\frac{1}{7} + 3\frac{3}{7} =$

Example

15) $3\frac{2}{5} + 2\frac{3}{5} =$

Example

16) $1\frac{3}{4} + \frac{1}{4} =$

Example

17) $6 + \frac{2}{5} + 2 + \frac{3}{5} =$

Example

18) $4\frac{3}{9} + 3\frac{4}{9} =$

Example

19) $4\frac{3}{6} + \quad = 6\frac{3}{6}$



20) $2\frac{1}{4} =$



21) $1\frac{2}{8} =$



22) $2\frac{2}{3} =$



23) $3\frac{1}{3} =$



24) $1\frac{2}{5} + \frac{1}{5} =$



25) $3\frac{2}{5} - 2\frac{1}{5} =$



26) $3 - 2\frac{1}{6} =$



27) $1\frac{7}{5} =$



28) $2\frac{6}{9} - 1\frac{2}{9} =$



29) $3\frac{4}{7} - 1\frac{3}{7} =$



30) $7\frac{7}{9} - 4\frac{4}{9} =$



31) $1\frac{2}{3} =$



32) $5 - 2\frac{1}{2} =$



33) $1 - \frac{1}{7} - \frac{2}{7} =$



34) $3\frac{2}{5} - 2\frac{1}{5} =$



35) $5 - \frac{1}{10} =$



36) $8\frac{3}{4} - 3\frac{1}{4} =$

Example

37) $3\frac{5}{7} - 2\frac{1}{7} =$

38) $6\frac{1}{5} - 2\frac{4}{5} =$

2. Answer the following

- 1) Salma went to market and bought $3\frac{1}{8}$ kg of banana and $1\frac{5}{8}$ kg of apple. How many kilograms did Salma buy?
- 2) Self studied math for $1\frac{1}{4}$ hour and science for $\frac{3}{4}$ hour. How many hours did self study in all?
- 3) Manar is making a drink that requires $\frac{5}{8}$ liter of milk and she has only $\frac{2}{8}$ liter of milk. How much milk does Manar need more to make the drink?
- 4) Waleed ate $2\frac{3}{8}$ of cakes and Ali ate $1\frac{1}{8}$ of cakes of the same size. What is the difference between what Waleed ate and Ali ate?
- 5) Mona has 24 $\frac{1}{2}$ pounds. She bought a dog for 22 $\frac{1}{2}$ pounds. How much money left with her?
- 6) Hady has $3\frac{1}{4}$ cookies. He gave $2\frac{3}{4}$ to his sister. How many cookies does he have left?
- 7) Zain drank $1\frac{3}{5}$ liters of water and Hamza drank $1\frac{5}{10}$ liters of water. What did the total liters of water that Zain and Hamza drink?

3. Choose the correct answer

- 1) $\frac{1}{2} + \frac{1}{3} + \frac{1}{4} =$
 a $2\frac{1}{4}$ b $2\frac{1}{2}$ c $2\frac{3}{5}$ d 3

Q101

2) $\frac{5}{9} + \frac{4}{9}$

a. $\frac{1}{9}$

b. $\frac{9}{18}$

c. 1

d. $\frac{20}{81}$

Q102

3) $4 + \frac{7}{11} + 2 + \frac{1}{11}$

a. $6\frac{8}{11}$

b. $6\frac{8}{22}$

c. $2\frac{6}{11}$

d. $7\frac{8}{11}$

Q103
(Easy)

4) $1\frac{1}{4} + \frac{3}{4} =$

a. $2\frac{1}{4}$

b. 2

c. 4

d. $2\frac{3}{4}$

Q104

5) $\frac{1}{5} + \frac{3}{5} + \frac{1}{5} =$

a. 1

b. 2

c. 5

d. 7

Q105
(Easy)

6) $4 + \frac{1}{3} =$

a. $4\frac{1}{3}$

b. $\frac{4}{3}$

c. $\frac{12}{3}$

d. $5\frac{1}{3}$

Q106

7) $\frac{6}{10} + \frac{4}{10}$

a. $\frac{8}{10}$

b. $\frac{4}{10}$

c. $\frac{4}{20}$

d. $\frac{6}{20}$

Q107

8) $6 - 3\frac{1}{4} =$

a. $3\frac{1}{4}$

b. $2\frac{3}{4}$

c. $9\frac{1}{4}$

d. $2\frac{1}{4}$

Q108

9) $\frac{1}{5} + \frac{2}{5} + \frac{2}{5} =$

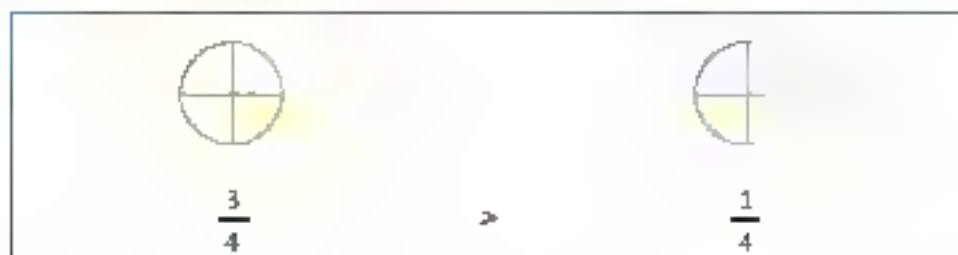
a. $\frac{1}{5}$

b. $\frac{4}{5}$

c. 1

d. $\frac{6}{5}$

Comparing fractions with like denominators

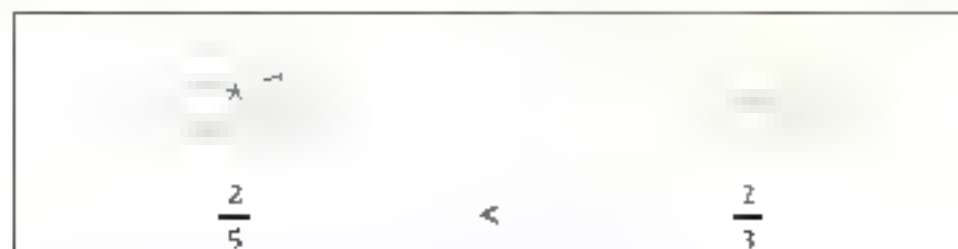


• $\frac{1}{3} < \frac{2}{3}$

• $\frac{4}{5} > \frac{2}{5}$

• $1 > \frac{3}{4}$

Comparing fractions with like numerators.



• $\frac{1}{7} < \frac{3}{5}$

• $\frac{1}{2} > \frac{1}{3}$

• $\frac{3}{2} > 1$

Ordering fractions with like denominators:

EX Write in an ascending order: $\frac{3}{9}$, $\frac{1}{9}$, $\frac{5}{9}$, $\frac{2}{9}$ and $\frac{7}{9}$

The order $\frac{1}{9}$, $\frac{2}{9}$, $\frac{3}{9}$, $\frac{5}{9}$, $\frac{7}{9}$

Ordering fractions with like numerators:

EX Write in an ascending order: $\frac{3}{4}$, $\frac{3}{6}$, $\frac{3}{2}$, $\frac{3}{5}$ and $\frac{3}{8}$

The order $\frac{3}{8}$, $\frac{3}{6}$, $\frac{3}{5}$, $\frac{3}{4}$, $\frac{3}{2}$

1. Complete by using > , < or =

1) $\frac{1}{4} < \frac{3}{4}$

2) $\frac{3}{5} < \frac{5}{5}$

3) $\frac{5}{6} < \frac{4}{6}$

4) $\frac{9}{5} > \frac{9}{7}$

5) $\frac{2}{6} < \frac{2}{6}$

6) $\frac{3}{4} < \frac{3}{6}$

7) $\frac{1}{4} < \frac{1}{3}$

8) $\frac{3}{6} < \frac{4}{6}$

9) $\frac{5}{6} < \frac{5}{8}$

10) $\frac{4}{8} < \frac{4}{5}$

11) $\frac{5}{8} < \frac{3}{6}$

12) $\frac{1}{7} < \frac{2}{2}$

13) $\frac{5}{7} < \frac{5}{8}$

14) $\frac{3}{11} < \frac{3}{7}$

2. Order the following fractions in an ascending order

1) $\frac{3}{5}, \frac{3}{8}, \frac{3}{3}, \frac{3}{4}, \frac{3}{12}$

2) $\frac{4}{11}, \frac{1}{11}, \frac{9}{11}, \frac{6}{11}$

3) $\frac{2}{7}, \frac{4}{7}, \frac{6}{7}, \frac{7}{7}$

4) $\frac{2}{5}, \frac{7}{9}, \frac{2}{3}, \frac{7}{10}, \frac{7}{7}$

5) $\frac{5}{3}, \frac{1}{3}, \frac{1}{3}$

6) $\frac{3}{5}, \frac{3}{10}, \frac{3}{4}, \frac{3}{9}, \frac{3}{7}$

3. Answer the following

- 1) Each of Othman and Ramzy has bar of sweet of the same size. If Othman ate $\frac{4}{6}$ of his bar and Ramzy ate $\frac{4}{8}$ of his bar. Who ate more?

4. Choose the correct answer

EXAM

1) $\frac{2}{7} + \dots = \frac{5}{7}$

a $>$

b $<$

c $=$

d Otherwise

EXAM

2) $\frac{3}{5} \dots \frac{3}{7}$

a $>$

b $<$

c $=$

d Otherwise

EXAM

3) $\frac{1}{4} < \frac{1}{3}$

a 8

b 7

c 5

d 3

EXAM

4) Which relation is correct?

a $\frac{7}{12} > \frac{7}{9}$

b $\frac{7}{8} < \frac{7}{10}$

c $\frac{7}{13} < \frac{7}{11}$

d $\frac{7}{15} > \frac{7}{9}$

EXAM

5) Which relation is correct?

a $\frac{3}{7} > \frac{5}{7}$

b $\frac{6}{7} < \frac{4}{7}$

c $\frac{1}{7} > \frac{3}{7}$

d $\frac{1}{7} < \frac{5}{7}$

EXAM

6) $\frac{4}{9} > \dots$

a $\frac{7}{9}$

b $\frac{5}{9}$

c $\frac{1}{9}$

d $\frac{8}{9}$

EXAM

7) $\frac{2}{9} < \dots$

a $\frac{2}{7}$

b $\frac{2}{10}$

c $\frac{2}{11}$

d $\frac{2}{12}$

EXAM

8) $\frac{3}{6} \dots \frac{3}{4}$

a $>$

b $<$

c $=$

d Otherwise

EXAM

9) $\frac{5}{8} \dots 1$

a $>$

b $<$

c $=$

d Otherwise

EXAM

10) $\frac{7}{3} \dots 1$

a $>$

b $<$

c $=$

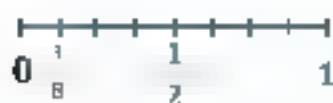
d Otherwise

• Benchmark fractions

- $0, \frac{1}{2}, 1$ are benchmark fractions

- We find the fraction is closer to which benchmark fractions $0, \frac{1}{2}, 1$

EX Find benchmarks for $\frac{1}{8}, \frac{3}{8}$ and $\frac{5}{8}$



So, $\frac{1}{8}$ is closer to 0



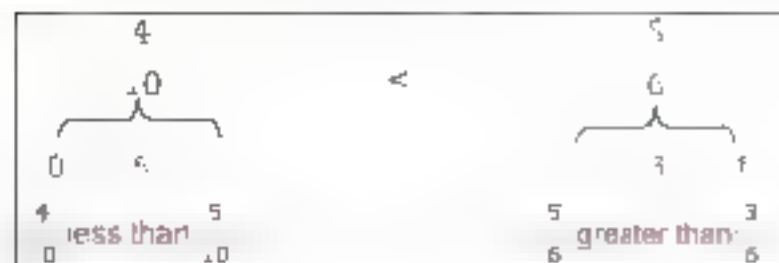
So, $\frac{3}{8}$ is closer to $\frac{1}{2}$



So, $\frac{5}{8}$ is closer to 1

• Comparing fractions using benchmark.

EX Compare $\frac{4}{10}$ and $\frac{5}{6}$ using benchmark fractions



Ordering fractions using benchmark:

EX Put the fractions $\frac{6}{8}, \frac{5}{10}, \frac{2}{6}$ in an ascending order

- $\frac{6}{8}$ is greater than (half) $\frac{4}{8}$
- $\frac{5}{10}$ is equal to (half) $\frac{5}{10}$
- $\frac{2}{6}$ is less than (half) $\frac{3}{6}$

The order: $\frac{2}{6}, \frac{5}{10}, \frac{6}{8}$

1. Choose the correct answer

- 1) The fraction $\frac{5}{8}$ is nearest to benchmark fraction
 a $\frac{1}{2}$ b $1\frac{1}{2}$ c 1 d 0
- 2) $\frac{7}{2}$ is closer to the benchmark fraction
 a 1 b $\frac{1}{2}$ c 0 d $\frac{1}{4}$
- 3) $\frac{8}{9}$ is closer to the benchmark fraction
 a 2 b 1 c 0 d $\frac{1}{2}$
- 4) The fraction $\frac{5}{6}$ is closed to (use the benchmark fraction)
 a 0 b $\frac{2}{3}$ c $1\frac{1}{2}$ d 1
- 5) Which of the following is closer to the benchmark fraction $\frac{1}{2}$?
 a $\frac{3}{3}$ b $\frac{2}{3}$ c $\frac{1}{8}$ d $\frac{7}{8}$
- 6) $\frac{11}{12}$ is closer to the benchmark fraction
 a 1 b $\frac{1}{2}$ c 0 d $\frac{1}{4}$
- 7) $\frac{1}{9}$ is closer to the benchmark fraction
 a 1 b $\frac{1}{2}$ c 0 d Otherwise

2. Answer the following

- 1) Arrange in ascending order $\frac{5}{10}, \frac{1}{6}, \frac{8}{9}$
- 2) Using the benchmark fraction to arrange in descending order
 $\frac{3}{10}, \frac{6}{8}, \frac{3}{6}$

Multiplication of Fractions

Multiplying a fraction by 1:

- When multiply any number by 1 the product is equal to that number

EX $25 \times 1 = 25$

EX $\frac{1}{2} \times 1 = \frac{1}{2}$

EX $1 \times \frac{5}{7} = \frac{5}{7}$

- We can write 1 as a fraction in many ways $1 = \frac{1}{1} = \frac{2}{2} = \frac{3}{3} = \dots$

EX $12 \times \frac{3}{3} = 12$

EX $\frac{7}{9} \times \frac{5}{5} = \frac{35}{45}$

- 1 is the multiplicative identity element

Multiplying a fraction by a whole number.

- When we multiply a whole number by a fraction we multiply the whole by the numerator with the same denominator

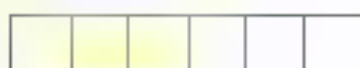
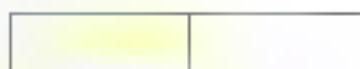
EX $3 \times \frac{1}{4} = \frac{3}{4}$

EX $3 \times \frac{1}{9} = \frac{3}{9}$

EX $\frac{1}{5} \times 4 = \frac{4}{5}$

Equivalent fraction:

- Equivalent fractions are the fractions which have the same amount in different forms



- $\frac{1}{2} = \frac{3}{6}$

- So, $\frac{1}{2}$ is equivalent to $\frac{3}{6}$

Find equivalent fraction:

- To find equivalent fraction we multiply or divide both the numerator and denominator of a fraction by any number (except zero)

EX Find two equivalent fractions of $\frac{3}{6}$

- $\frac{3 \div 2}{6 \div 2} = \frac{3}{12}$

- $\frac{3 \times 3}{6 \times 3} = \frac{1}{2}$

Find missing numerator or denominator:

- To find the missing decide if we multiply or divide by a number then do the same with the other

EX Find the missing of

$$\bullet \quad \frac{2}{5} = \frac{\quad}{15}$$

× 3

$$\frac{2}{5} = \frac{6}{15}$$

× 3

$$\bullet \quad \frac{6}{12} = \frac{2}{\quad}$$

÷ 6

$$\frac{6}{12} = \frac{3}{6}$$

÷ 2



1 Find an equivalent fraction of each

1) $\frac{1}{4} =$

3) $\frac{2}{3} =$

5) $\frac{10}{15} =$

7) $\frac{2}{5} =$

9) $\frac{6}{12} =$

2) $\frac{3}{9} =$

4) $\frac{5}{20} =$

6) $\frac{4}{7} =$

8) $\frac{3}{3} =$

10) $\frac{7}{21} =$

2 Complete

Multi
[Ex, p. 9]

1) $\frac{3}{4} \times \frac{5}{5} =$

Multi
[Ex, p. 9]

3) $\frac{2}{3} \times 1 =$

Multi
[Ex, p. 9]

5) $\frac{5}{8} \times \frac{1}{3} = \frac{15}{24}$

Multi
[Ex, p. 9]

7) $4 \times \frac{1}{9} =$

Multi
[Ex, p. 9]

9) $3 \times \frac{2}{9} =$

Multi
[Ex, p. 9]

11) $\frac{1}{8} \times 7 =$

Multi
[Ex, p. 9]

13) $4 \times \frac{1}{2} =$

Multi
[Ex, p. 9]

15) $5 \times \frac{1}{7} =$

Multi
[Ex, p. 9]

17) $\frac{3}{4} = \frac{1}{12}$

Multi
[Ex, p. 9]

19) $\frac{2}{9} = \frac{10}{18}$

Multi
[Ex, p. 9]

21) $\frac{12}{18} = \frac{4}{3}$

Multi
[Ex, p. 9]

23) $\frac{20}{25} = \frac{4}{5}$

Multi
[Ex, p. 9]

25) $\frac{4}{15} = \frac{11}{15}$

Multi
[Ex, p. 9]

2) $\frac{3}{4} \times$

Multi
[Ex, p. 9]

4) $\frac{5}{6} \times = \frac{5}{6}$

Multi
[Ex, p. 9]

6) $\frac{4}{7} \times = \frac{16}{28}$

Multi
[Ex, p. 9]

8) $7 \times \frac{1}{9} =$

Multi
[Ex, p. 9]

10) $4 \times \frac{1}{5} =$

Multi
[Ex, p. 9]

12) $\frac{3}{7} \times 3 =$

Multi
[Ex, p. 9]

14) $2 \times \frac{1}{5} =$

Multi
[Ex, p. 9]

16) $\frac{5}{6} \times = 0$

Multi
[Ex, p. 9]

18) $\frac{2}{3} = \frac{10}{12}$

Multi
[Ex, p. 9]

20) $\frac{5}{9} = \frac{10}{18}$

Multi
[Ex, p. 9]

22) $\frac{2}{3} = \frac{4}{6}$

Multi
[Ex, p. 9]

24) $\frac{2}{3} = \frac{4}{6}$

Multi
[Ex, p. 9]

26) $\frac{2}{5} = \frac{4}{10}$

9) $\frac{5}{7} = \frac{\quad}{21}$

10) $\frac{10}{70} = \frac{\quad}{7}$

11) $\frac{8}{10} = \frac{4}{\quad}$

12) $\frac{3}{10} = \frac{\quad}{50}$

13) $\frac{4}{5} = \frac{24}{\quad}$

22) $\frac{4}{7} = \frac{28}{\quad}$

23) $\frac{12}{20} = \frac{\quad}{5}$

24) $\frac{5}{8} = \frac{\quad}{16}$

25) $\frac{8}{10} = \frac{\quad}{5}$

26) $\frac{3}{5} = \frac{\quad}{\quad}$

3. Answer the following

1) Nabil had 9 cookies $\frac{2}{3}$ of them were chocolate chip. How many cookies were chocolate chip?

2) Ahmed has 15 cakes $\frac{3}{5}$ of them are covered with chocolate. How many chocolate cakes are there?

3) Youssef has 18 apples. Two third of the apples are red. How many apples are red?

4) Khalid ate $\frac{1}{6}$ from the candy box so if there were 24 pieces in the box how many pieces did Khalid eat?

5) Sahar has 9 cakes $\frac{2}{3}$ of them are chocolate. How many chocolate cakes are there?

6) The day is 24 hours how many hours are there in $\frac{1}{3}$ day?

7) How many sevenths in the number 3?

4 Choose the correct answer

1) $\frac{1}{3} = \frac{\quad}{9}$
a 2 b 7 c 3 d 4

2) $\frac{5}{8} = \frac{10}{\quad}$
a 5 b 10 c 12 d 13

3) The fraction $\frac{5}{6}$ is equivalent to
a $\frac{10}{6}$ b $\frac{10}{18}$ c $\frac{25}{30}$ d $\frac{5}{12}$

4) The fraction $\frac{1}{2}$ is equivalent to
a $\frac{1}{4}$ b $\frac{1}{5}$ c $\frac{3}{5}$ d $\frac{3}{8}$

5) Which of the following is true?
a $\frac{5}{15} = 3$ b $\frac{3}{4} = \frac{3}{4}$ c $\frac{6}{8} = \frac{3}{4}$ d $\frac{1}{13} = \frac{4}{4}$

6) Which fraction is Not equivalent to $\frac{1}{2}$?
a $\frac{6}{12}$ b $\frac{5}{15}$ c $\frac{2}{6}$ d $\frac{1}{3}$

7) $1 \times \frac{3}{7} =$
a $\frac{3}{7}$ b $\frac{1}{7}$ c $\frac{7}{3}$ d 1

8) $\frac{3}{6} \times 0 =$
a $\frac{5}{6}$ b 0 c 1 d $\frac{6}{5}$

9) $4 \times \frac{1}{5} =$
a $\frac{1}{5}$ b $\frac{4}{5}$ c $\frac{3}{7}$ d $\frac{5}{8}$

10) $\frac{3}{11} \times \frac{6}{11} =$
a 1 b 2 c 3 d 4

Unit 10: Decimals

Lessons

1 2

- **Decimal fractions**

Lessons

3 4

- **Place value of decimals**
- **Different forms of decimals**

Lessons

5 6

- **Same value in different forms**

Lessons

7

- **Equivalent decimals**

Lessons

8 9

- **Comparing decimals**

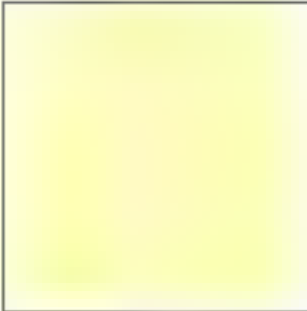
Lessons

10 11

- **Adding fractions with denominators 10 and 100**

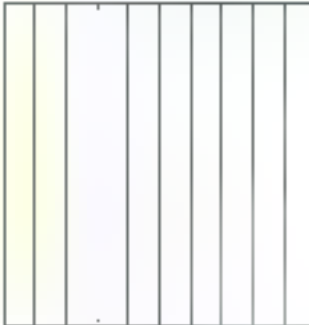
^ Decimal fraction

- It is a number that its value greater than 0 and less than 1
- **Decimal** is another way to write a fractions with denominators of 10 or 100 by using decimal point.



The one whole can be divided into

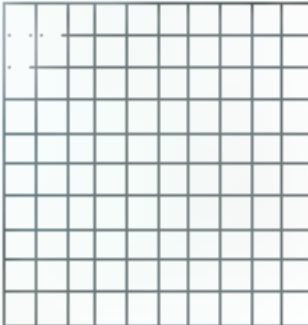
• **10 equal parts:**



The shaded part.

- Writing as $\frac{1}{10}$ or 0.1
- Reading as: one tenth

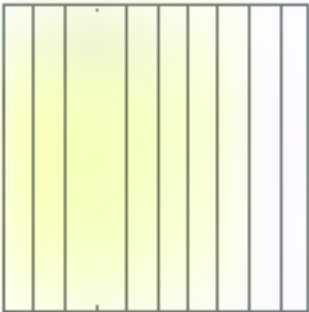
• **100 equal parts:**



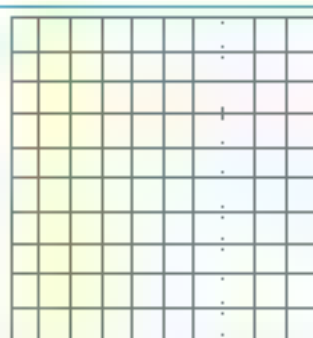
The shaded part

- Writing as $\frac{1}{100}$ or 0.01
- Reading as: one hundredth

EX

Model	Fraction	Decimal
	<ul style="list-style-type: none"> • Writing as: $\frac{7}{10}$ • Reading as: seven tenths 	<ul style="list-style-type: none"> • Writing as: 0.7 • Reading as: seven tenths

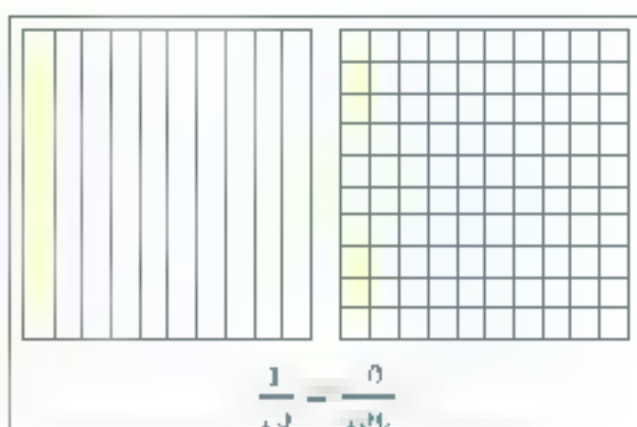
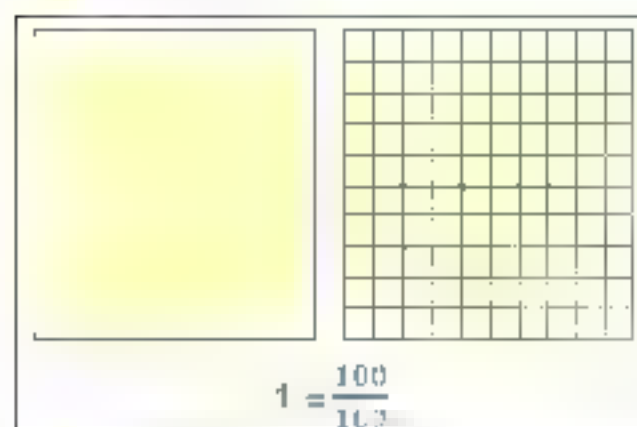
EX



- Writing as: $\frac{35}{100}$
- Reading as
Thirty five hundredths

- Writing as: 0.35
- Reading as:
Thirty five hundredths

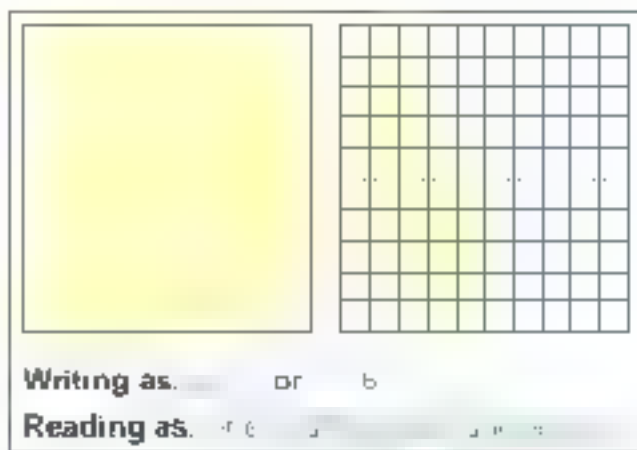
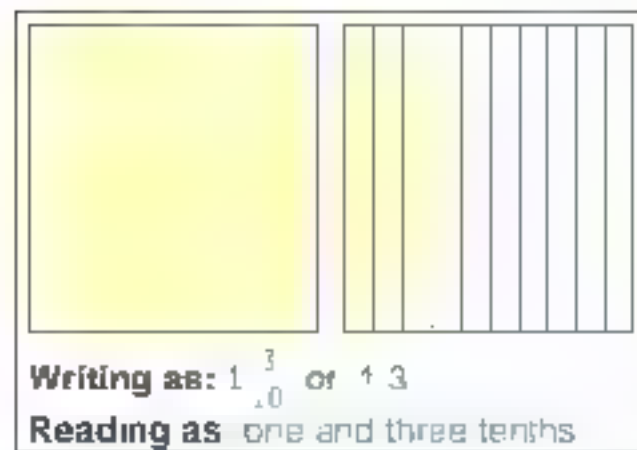
Notes:



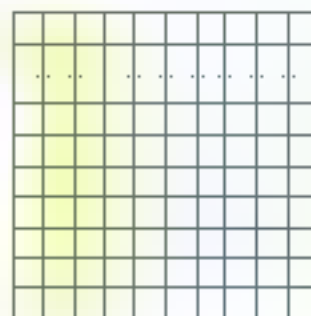
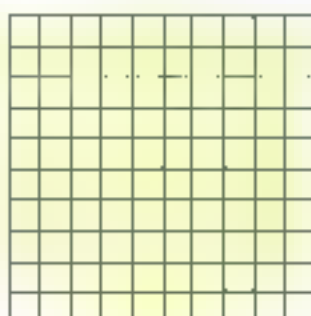
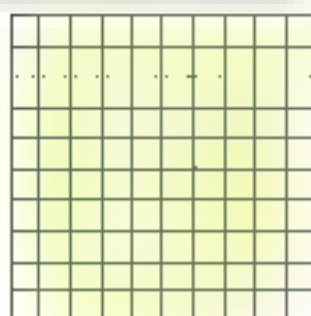
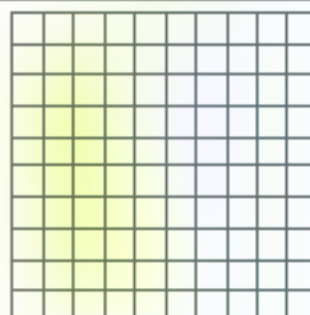
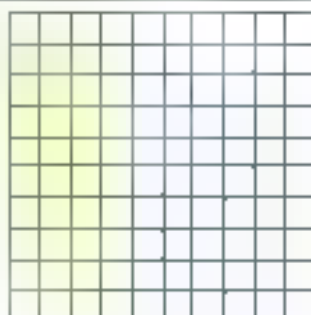
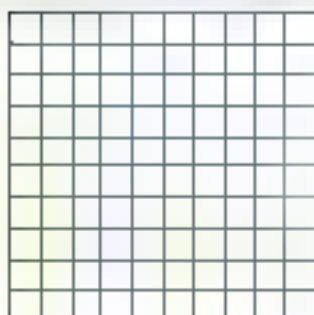
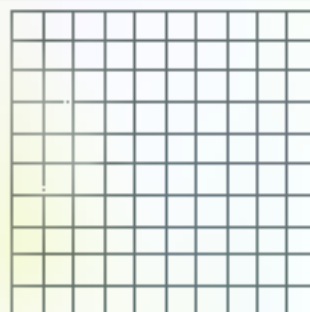
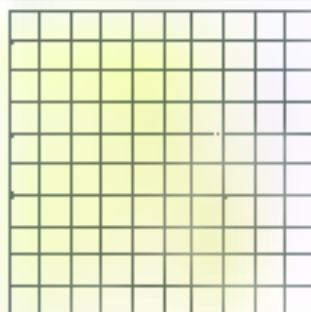
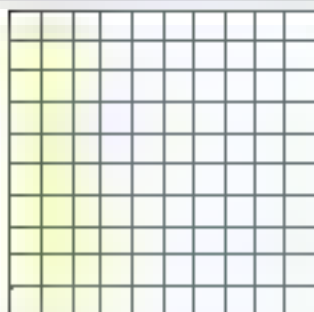
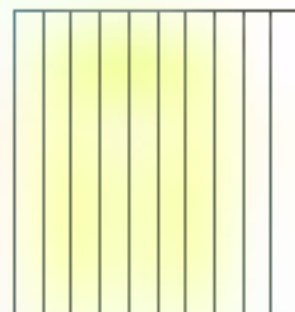
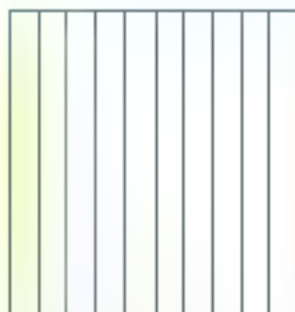
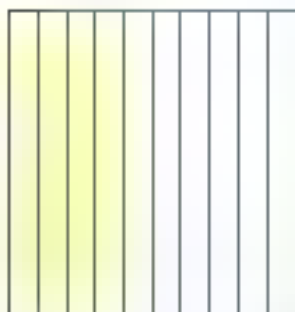
Decimal number

- It is a number greater than 1
- The decimal number consists of

$\overset{\text{Whole}}{\underset{\text{part}}{3}} \quad \overset{\text{Decimal}}{\underset{\text{point}}{.}} \quad \overset{\text{Decima.}}{\underset{\text{part}}{45}}$



1. Write the decimal of each of the colored parts



2 Write as a decimal

1) $\frac{2}{10}$

3) $\frac{3}{10} =$

5) $3 \frac{8}{10} =$

7) $1 \frac{1}{10}$

9) $\frac{17}{10}$

11) $\frac{35}{10} =$

2) $\frac{27}{100}$

4) $\frac{51}{100}$

6) $\frac{4}{100} =$

8) $7 \frac{15}{100}$

10) $3 \frac{3}{100}$

12) $3 \frac{45}{100}$

3 Write as a fraction

1) $0.3 = \frac{\quad}{\quad}$

3) $0.6 = \frac{\quad}{\quad}$

5) $1.42 = \frac{\quad}{\quad}$

7) $0.07 = \frac{\quad}{\quad}$

9) $2.3 = \frac{\quad}{\quad}$

11) $5.40 = \frac{\quad}{\quad}$

2) $1.34 = \frac{\quad}{\quad}$

4) $3.05 = \frac{\quad}{\quad}$

6) $4.16 = \frac{\quad}{\quad}$

8) $1.6 = \frac{\quad}{\quad}$

10) $5.21 = \frac{\quad}{\quad}$

12) $12.07 = \frac{\quad}{\quad}$

4 Choose the correct answer

1) The decimal which represents the colored parts is



- a 7.1 b 1.7 c 7.10 d 10.7

2) The decimal which represents the colored parts is



- a 0.7 b 0.3 c 1.3 d 1.7

Q100

3) 0.3

a $\frac{3}{10}$

b $\frac{50}{10}$

c $\frac{2}{5}$

d $\frac{5}{2}$

Q101

4) 0.25

a $\frac{75}{10}$

b $\frac{25}{100}$

c $\frac{5}{100}$

d $2\frac{5}{10}$

Q102

5) $\frac{3}{10}$

[as a decimal]

a 0.3

b 10.3

c 3.01

d 3.1

Q103

6) $\frac{15}{10} =$

a 1.5

b 0.15

c 10.5

d 1.05

Q104

7) $\frac{75}{10} =$

a 25

b 2.5

c 0.25

d 2.05

Q105

8) 4.79 =

a $4\frac{79}{100}$

b $4\frac{79}{10}$

c $79\frac{4}{100}$

d $79\frac{4}{10}$

Q106

9) 0.4 is equal to

a 0.04

b $\frac{40}{10}$

c 0.40

d $\frac{4}{100}$

Q107

10) $\frac{2}{100} =$

a 0.2

b 0.20

c $\frac{70}{10}$

d 0.02

Q108

11) 0.7 =

a $\frac{7}{10}$

b $\frac{100}{10}$

c $\frac{7}{100}$

d $\frac{7}{10}$

Q109

12) The decimal which represents the colored parts is

a 0.3

b 0.6

c 0.7

d 1

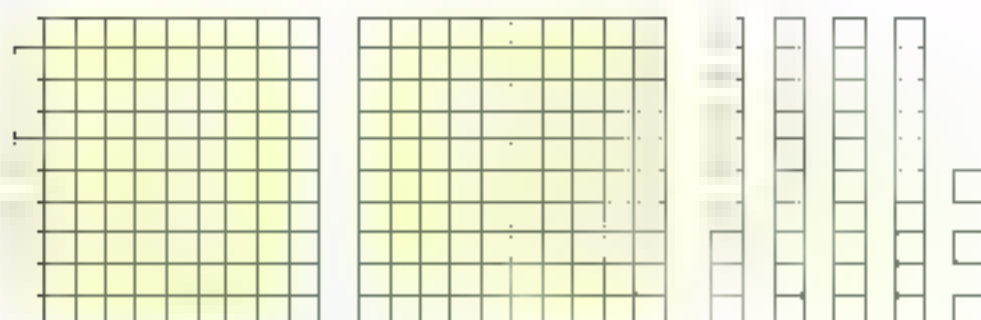


Place value of decimals

The place value of decimals:

	376.25					
Place value	Hundreds	Tens	Ones	.	Tenths	Hundredths
Value	300	60	7		0.2	0.05

Different forms of decimals:



- Standard form: 243
- Expanded form: $2 + 0.4 + 0.03$
- Unit form: 2 ones, 4 tenths, 3 hundredths
- Word form: two and forty-three hundredths

EX

Standard form	Expanded form	Unit form	Word form
36.7	$30 + 6 + 0.7$	3 tens, 6 ones, 7 tenths	Thirty-six and seven tenths
4.65	$4 + 0.6 + 0.05$	4 ones, 6 tenths, 5 hundredths	Four and sixty-five hundredths
8.05	$8 + 0.05$	8 ones, 5 hundredths	Eight and five hundredths
426.35	$400 + 20 + 6 + 0.3$	4 hundreds, 2 tens, 6 ones, 3 tenths	Four hundred twenty-six and three tenths

1 Write the value and the place value of the underlined digit

Number	Value	Place value
6 <u>2</u> 5		
<u>8</u> 0 2	.	.
7 <u>5</u>		
<u>2</u> 4 7 8 1		
1 <u>9</u> 3	+	+
0 <u>4</u>		
5 0 <u>8</u>		

Number	Value	Place value
<u>8</u> . 3 2		
<u>2</u> 5 2 5		
4 1 <u>0</u>		
0 <u>4</u> 5		
<u>2</u> 9 1		
3 3 <u>3</u>		
5 <u>4</u> 2		

2. Complete

	Number	Expanded form	Word form
1)	2 5		
2)	1 2 4		
3)	2 0 4		
4)	4 5 2		
5)	2 5 6		
6)	6 8 0		
7)	0 7 9		
8)	2 0 0 5		
9)	3 6		
10)	4 2 8		
11)	3 2 7 4 5		

3. Write the number in the unit form

	Number	Unit form
1)	4 52	
2)	2 8	
3)	12 3	
4)	0 71	
5)	2 43	

4. Write the number in the standard form

	Number	Standard form
1)	$5 + 0.5 + 0.01$	
2)	$2 + 0.07$	
3)	$3 + 0.8$	
4)	$0.5 + 0.08$	
5)	$20 + 0.6 + 0.03$	
6)	$40 + 2 + 0.08$	

5. Write the number in the standard form

	Number	Standard form
1)	Nine and forty-three hundredths	
2)	Two and fifty hundredths	
3)	Sixty-nine hundredths	
4)	Seven and four tenths	
5)	Forty and two tenths	
6)	One and five hundredths	

6 Write the number in the standard form

	Number	Standard form
1)	5 ones, 6 tenths, 8 hundredths	
2)	7 ones, 9 hundredths	
3)	4 tens, 6 ones, 7 tenths, 9 hundredths	
4)	5 tenths, 3 hundredths	
5)	3 tens, 7 hundredths	

7. Complete

- 1) The value of the digit 6 in the number 2.65 is
- 2) The value of the digit 5 in the number 7.85 is
- 3) The value of the digit 3 in the number 24.32 is
- 4) The value of the digit 6 in the number 5.63 is
- 5) The value of the digit 4 in the number 3.94 is
- 6) The smallest value of the digit 2 in the number 2.22 is
- 7) The place value of the 5 in the number 12.15 is
- 8) The place value of the 7 in the number 3.67 is
- 9) The place value of the 6 in the number 2.65 is
- 10) The place value of the 7 in the number 37.9 is
- 11) Five and three tenths =
- 12) Two and nineteen hundredths =
- 13) Five and five hundredths =
- 14) 6 tens and 8 tenths =
- 15) 5 ones, 6 tenths, 8 hundredths =
- 16) 2 ones, 3 tenths, 5 hundredths = [as a decimal]
- 17) The standard form of 8 ones, 5 tenths, 7 hundredths is

- 18)** The standard form of 2 ones 1 tenth 9 hundredths =
- 19)** $2 + 0.1 + 0.03 =$ [in standard form]
- 20)** $4 + 0.3 + 0.08 =$ [in standard form]
- 21)** $6 + 0.6 + 0.06 =$
- 22)** $3 + 0.3 + 0.03 =$
- 23)** $3.2 =$ + 0.2
- 24)** $4.9 = 4 +$
- 25)** $60.57 =$ + + [in expanded form]
- 26)** $4.73 =$ + + [in expanded form]
- 27)** $6.17 =$ + + [in expanded form]
- 28)** 12.08 is [as words form]
- 29)** 4.52 is + + [in unit form]
- 30)** $8.5 =$ + + + + [in unit form]

8. Answer the following

- 1)** Write the standard form for: $4 + 0.7 + 0.09$
- 2)** Write the number 3.27 in:
- Word form
 - Expanded form
- 3)** Write the required forms for the decimal number 4.27
- Word form
 - Unit form
- 4)** a tree with a length of $5\frac{45}{100}$ represent the length of the tree in decimal form, then in word form
- decimal form:
 - word form.
- 5)** Write 3 different values of the digit 9 in the number 9.99

9 Choose the correct answer

100%

- 1) The decimal which represents
The following model is



a 1.3 b 0.3 c 0.13 d 0.12

100%

- 2) The value of the digit 9 in the number 0.19 is

a 9 b 0.09 c 0.9 d 90

100%

- 3) The place value of the digit 3 in the number 5.63 is

a Ones b Tens c Tenths d Hundredths

100%

- 4) The number which has the value of the digit 6 is 0.6 is

a 61.45 b 6.75 c 12.68 d 2.06

100%

- 5) The word form of 0.6 is

a Sixty b Six tenths
c Six d Six hundredths

100%

- 6) The expanded form for the number 3.15 is

a $3 + 0.2 + 0.05$ b $3 + 0.1 + 0.05$
c $5 + 0.1 + 0.3$ d $1 + 0.3 + 0.5$

100%

- 7) The expanded form for the number 2.35 is

a $2 + 0.5 + 0.03$ b $2 + 0.3 + 0.05$
c $3 + 0.5 + 0.02$ d $5 + 0.2 + 0.03$

100%

- 8) The standard form for the number
3 ones, 5 tenths, 7 hundredths is

a 3.57 b 3.75 c 7.53 d 5.37

100%

- 9) 4 ones, 6 tenths, 2 hundredths =

a 6.42 b 2.46 c 4.62 d 2.64

- 10)** Four and thirty two hundredths =
a 0.43 b 4.32 c 40.32 d 4.23
- 11)** Thirty three hundredths =
a 3300 b 30.03 c $\frac{33}{10}$ d 0.33
- 12)** Two and eight hundredths =
a 2.8 b 2.08 c 8.2 d 280
- 13)** 71 hundredths equals
a $\frac{7}{100}$ b 0.21 c 0.71 d $\frac{17}{100}$
- 14)** 53 hundredths =
a $\frac{5}{100}$ b 0.8 c 0.53 d $\frac{35}{100}$
- 15)** Five tenths =
a 50 b 0.5 c 0.05 d 5.05
- 16)** $5 + 0.7 + 0.02 =$
a 0.572 b 27.5 c 5.72 d 5.27
- 17)** $4 + 0.2 + 0.03 =$
a 4.23 b 3.24 c 2.43 d 4.32
- 18)** $3 + 0.3 + 0.03 =$
a 0.33 b 3.3 c 3.33 d 33.3
- 19)** $2.65 = 2 +$
a 65 b 0.065 c 0.65 d 6.5

Same value in different forms

• Decimal	• Fraction	• Mixed number
2.7	$\frac{27}{10}$	$2\frac{7}{10}$

Convert from decimal to fraction.	Convert from decimal to fraction.	
<ul style="list-style-type: none"> • $0.6 = \frac{6}{10}$ • $0.03 = \frac{3}{100}$ • $2.14 = \frac{214}{100} = 2\frac{14}{100}$ 	<ul style="list-style-type: none"> • $\frac{35}{100} = 0.35$ • $\frac{647}{100} = 6.47$ • $\frac{8}{100} = 0.08$ 	<ul style="list-style-type: none"> • $\frac{5}{10} = 0.5$ • $3\frac{19}{100} = 3.19$ • $4\frac{1}{10} = 4.1$

The parts of whole one:

<ul style="list-style-type: none"> • There are 10 tenths in the whole one • $1 = 10 \text{ tenths} = \frac{10}{10}$ • $2.8 = 28 \text{ tenths} = \frac{28}{10}$ • $7 = 70 \text{ tenths} = 700 \text{ hundredths}$ 	<ul style="list-style-type: none"> • There are 100 hundredths in the whole one • $1 = 100 \text{ hundredths} = \frac{100}{100}$ • $1.3 = 130 \text{ hundredths} = \frac{130}{100}$ • $3.4 = 34 \text{ tenths} = 340 \text{ hundredths}$

1. Write as a fraction



1) $0.3 =$



3) $0.23 =$



5) $10.05 =$



7) $0.02 =$



2) $5.97 =$



4) $0.67 =$



6) $3.4 =$



8) $4.79 =$

2. Complete



1) 1.5

- Tenth
- Fraction



3) 1

- Hundredth
- Fraction



2) 3

- Tenth
- Fraction



4) 10.8

- Hundredth
- Fraction

3. Complete

Example

1) $2.4 =$ tenths

Example

2) $7.5 =$ tenths

Example

3) 7 tenths = hundredths

Example

4) The number of hundredths in the one whole =

Example

5) The number of tenths in the number 8 =

Example

6) 4.5 tenths = [as a decimal]

Example

7) $3 \frac{3}{100} =$ [as a decimal]

Example

8) $3 \frac{75}{100} =$ [as a decimal]

Example

9) $3.7 =$ [as a mixed number]

Example

10) $3.4 =$ [as an improper fraction]

Example

11) $1.8 = \frac{\quad}{10}$ [as a fraction]

Example

12) $5.3 = 5 \frac{\quad}{10}$

Example

13) $18.5 =$ [in a fraction form]

- 14) $0.07 =$ [as a fraction]
 15) $0.23 =$ [as a fraction]
 16) $0.7 =$ [as a fraction]

4. Answer the following

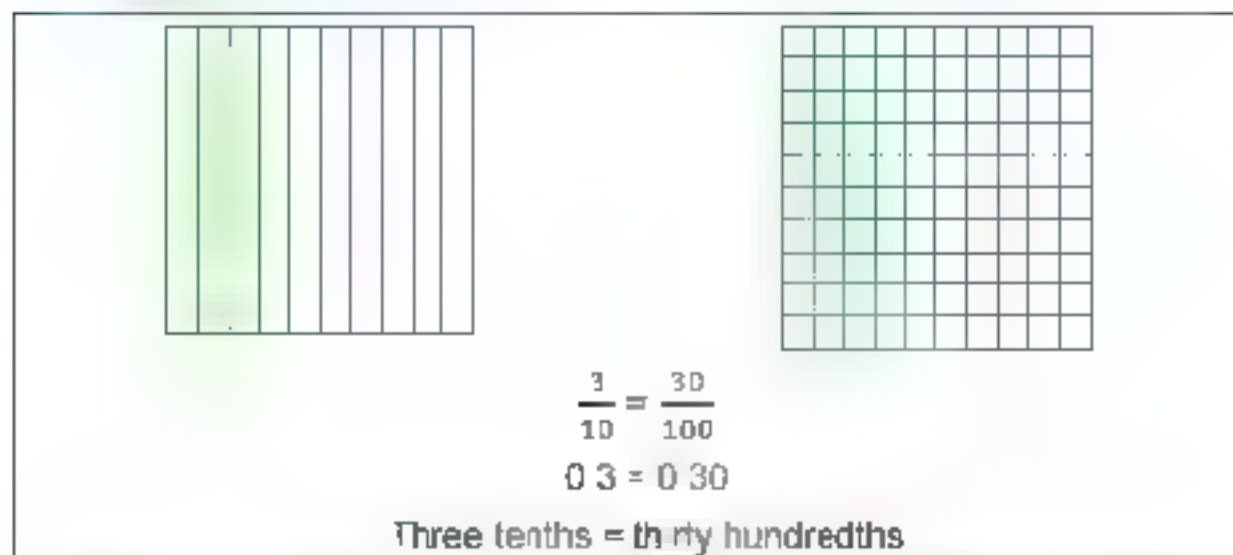
- 1) A tree of length 37 Tenth meters express the length as a decimal number and what is the number of Hundredths ?

5. Choose the correct answer

- 1) 28 tenths =
 a 0.29 b 2.9 c 9.2 d 90.2
- 2) Thirty-six tenths =
 a 0.36 b $\frac{36}{100}$ c $\frac{36}{10}$ d $3\frac{6}{100}$
- 3) 473 hundredths =
 a 0.7 b 4.73 c 47.3 d 473
- 4) 47 hundredths
 a 0.47 b 4.7 c $\frac{47}{10}$ d 0.74
- 5) 7 tenths = hundredths
 a 70 b 7 c 10 d 17
- 6) 34 = tenths
 a 34 b 340 c 3.4 d 0.34
- 7) 0.7 = tenths
 a 70 b 700 c 0.7 d 7
- 8) 15 = tenths
 a 1.5 b 0.15 c 15 d 150

Equivalent fractions and decimals:

- Equivalent fractions are the fractions which have the same value in different forms



EX

Write the equivalent fraction and the equivalent decimal of each of the following:

Number	Equivalent fraction	Equivalent decimal
$\frac{40}{100}$	$\frac{4}{10}$	0.4
0.50	$\frac{5}{10}$	0.5
$\frac{8}{10}$	$\frac{80}{100}$	0.80
0.1	$\frac{10}{100}$	0.10

1. Complete

1) $\frac{20}{100} = \frac{\quad}{10}$

2) $\frac{200}{100} = \frac{\quad}{10}$

3) $\frac{4}{10} = \frac{40}{\quad}$

4) $\frac{5}{10} = \frac{50}{\quad}$

5) $2\frac{8}{10} = 2\frac{\quad}{100}$

6) $\frac{10}{100} = \frac{\quad}{10}$

7) $\frac{90}{100} = \frac{\quad}{10}$

2. Choose the correct answer

1) $\frac{70}{100} = \frac{7}{\quad}$

a 10

b 100

c 1,000

d 10 000

2) $\frac{3}{10}$ is equivalent to $\frac{\quad}{100}$

a 3

b 30

c 0.3

d 13

3) 0.4 is equivalent to

a $\frac{4}{100}$

b $\frac{1}{4}$

c $\frac{10}{4}$

d $\frac{4}{10}$

4) $\frac{2}{10}$ is equivalent to

a 0.20

b 0.02

c 2.0

d 2.2

5) Which fraction is equivalent to 0.3?

a $\frac{30}{10}$

b $\frac{3}{100}$

c $\frac{3}{10}$

d $\frac{300}{100}$

• Comparing decimals:

Compare using place value chart

- Compare 0.34 and 0.62

Ones	.	Tenths	Hundredths
0	.	3	4
0	.	6	2

$$0.34 < 0.62$$

- Compare 1.58 and 5.03

Ones	.	Tenths	Hundredths
1	.	5	8
5	.	0	3

$$1.58 < 5.03$$

- Compare whole parts
- If the whole parts are equal, compare decimal parts from tenths

EX compare using $>$, $<$ or $=$:

$$• 0.8 > 0.5$$

$$• 1.53 < 3.24$$

$$• 0.9 > 0.75$$

$$• 3.7 = 3.70$$

Comparing decimals and fractions in different forms:

- To compare decimals in different forms, make them in the same form, then compare them

EX compare using $>$, $<$ or $=$:

$$• 0.35 < \frac{4}{10}$$

$$• 27 \text{ tenths} > 0.27$$

$$• 3 \text{ ones, 5 tenths} > 3.05$$

$$• 1.06 = \frac{106}{100}$$

1. Compare by using $>$, $<$ or $=$

- | | |
|---------------------|----------------------------------|
| 1) 49.3 | 4.93 |
| 2) $2\frac{6}{10}$ | 2.06 |
| 3) $\frac{16}{100}$ | 0.34 |
| 4) 0.2 | 0.19 |
| 5) $\frac{6}{100}$ | 0.6 |
| 6) 9.4 | 4 ones, 9 hundredths |
| 7) 40.5 | 4 tens, 5 hundredths |
| 8) 9.32 | nine and twenty-three hundredths |
| 9) 2.5 | 2.58 |
| 10) 0.7 | seven tenths |

2. Answer the following

- 1) Adam drank 0.5 liter of juice. Omar drank $\frac{4}{10}$ liter of juice.
Who drank more?
- 2) Gamal's home is 0.44 kilometer from the school while Hany's home is $\frac{6}{10}$ kilometer from the school. Who walks the longer distance to the school?

3 Choose the correct answer

4000
10000

1) 0.4 < 0.34

a <

b >

c =

d Otherwise

4000
10000

2) 4.5 < 4.51

a <

b >

c =

d Otherwise

4000
10000

3) 0.9 <

a 0.7

b 0.15

c 0.8

d 1.2

4000
10000

4) 7 tenths < $\frac{17}{100}$

a <

b >

c =

d Otherwise

4000
10000

5) Which of the following is wrong statement?

a $0.34 < 0.4$

b $0.45 > 0.04$

c $0.23 < 0.3$

d $0.54 > 0.45$

4000
10000

6) 0.6 < 0.59

a <

b >

c =

d Otherwise

4000
10000

7) 2.5 < 2.58

a <

b >

c =

d Otherwise

4000
10000

8) 50.02 < 20.05

a <

b >

c =

d Otherwise

4000
10000

9) 1.03 < 5.7

a <

b >

c =

d Otherwise

4000
10000

10) 0.7 < 7 tenths

a <

b >

c =

d Otherwise

4000
10000

11) Which is the correct statement?

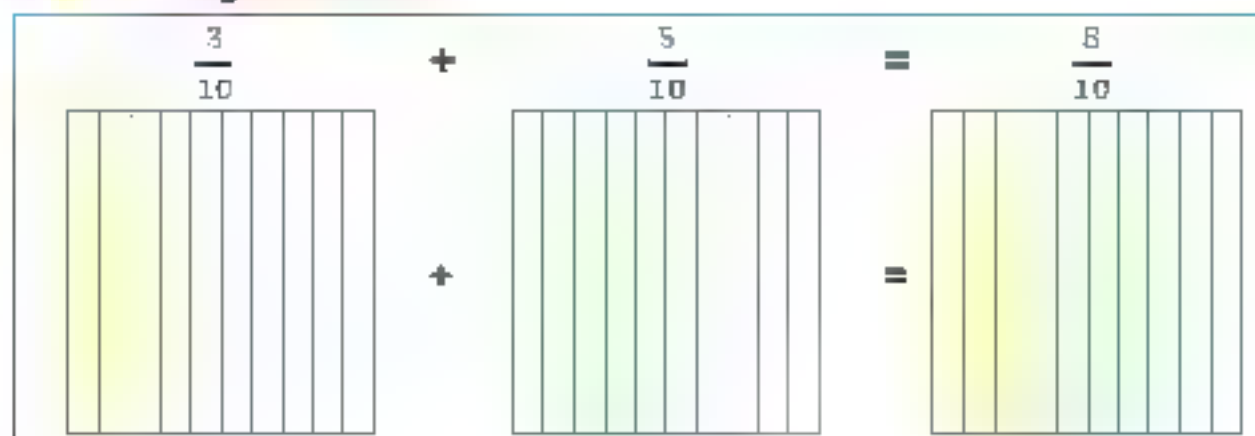
a $8.03 < 8.3$

b $5.3 < 5.14$

c $74.8 < 74.8$

d $0.55 > 0.52$

Adding fractions:



EX

- $\frac{2}{10} + \frac{4}{10} = \frac{6}{10}$
- $3\frac{1}{10} + 2\frac{4}{10} = 5\frac{5}{10}$
- $2\frac{7}{10} + 5\frac{8}{10} = 7\frac{15}{10} = 8\frac{5}{10}$
- $\frac{3}{10} + \frac{5}{10} + \frac{4}{10} = \frac{12}{10} = 1\frac{2}{10}$
- $\frac{23}{100} + \frac{45}{100} = \frac{68}{100}$
- $3\frac{45}{100} + 2\frac{34}{100} = 5\frac{79}{100}$
- $\frac{86}{100} + \frac{43}{100} = \frac{129}{100} = 1\frac{29}{100}$

Adding using equivalent fractions:

- $\frac{3}{10} + \frac{42}{100} = \frac{30}{100} + \frac{42}{100} = \frac{72}{100}$
- $2\frac{5}{10} + 4\frac{67}{100} = 2\frac{50}{100} + 4\frac{67}{100} = 6\frac{117}{100} = 7\frac{17}{100}$

1. Complete

1) $\frac{90}{100} + \frac{10}{100}$

2) $\frac{2}{100} + \frac{5}{100}$

3) $\frac{6}{10} + \frac{40}{100}$

4) $\frac{4}{10} + \frac{4}{100}$

5) $\frac{2}{10} + \frac{50}{100}$

6) $\frac{4}{10} + \frac{5}{100}$

7) $\frac{12}{100} + \frac{5}{100}$

8) $2\frac{3}{10} + 4\frac{5}{100}$

[as mixed number]

9) $\frac{69}{100} + \frac{2}{100}$

[in the decimal form]

10) $\frac{3}{10} + \frac{46}{100} =$

[in the decimal form]

11) $\frac{1}{10} + \frac{33}{100} =$

[in the decimal form]

12) $\frac{4}{10} + \frac{3}{10} + \frac{2}{10} + \frac{4}{10}$

13) $\frac{3}{10} + \frac{1}{100}$

2. Answer the following

1) Hady has $\frac{6}{10}$ L of juice. He add $\frac{40}{100}$ L of juice to them. How many liters does he have in all?

2) Hosam walked $\frac{5}{10}$ kilometers then he walked $\frac{21}{100}$ kilometer. How long did Hosam walk to his home?

3) Hana bought a piece of cloth of length $\frac{8}{10}$ meter and mona bought another piece of length $\frac{25}{100}$ meter. What is the total length of the two pieces?

Sum
Exam

- 4) Aya had $1\frac{5}{10}$ kilogram of rice. She bought another $1\frac{25}{10}$ kilogram. she used all amount to cook a meal.
How much rice did she use?

Sum
Exam

- 5) Mina walked $\frac{5}{10}$ kilometer then he walked another $\frac{35}{10}$ kilometer.
How long did Mina walk altogether [fraction and decimal]?

Sum
Exam

- 6) Hana bought a pizza pie and divided into 10 equal portions. she gave Soha $\frac{3}{10}$ of the pizza and gave Nora $\frac{5}{10}$ of the pizza.
What decimal is the remainder?

3 Choose the correct answer:

Sum
Exam

1) $\frac{3}{10} + \frac{6}{100} =$

a $\frac{36}{10}$

b $\frac{60}{10}$

c $\frac{36}{100}$

d $\frac{63}{100}$

Sum
Exam

2) $\frac{1}{10} + \frac{11}{100} =$

a 0.12

b 0.21

c 2.1

d 1.2

Sum
Exam

3) $\frac{7}{10} + \frac{2}{10} =$

a 9

b 90

c 5

d 50

Sum
Exam

5) $3\frac{2}{10} = 3\frac{\quad}{100}$

a 2.000

b 200

c 20

d 2

Sum
Exam

6) $\frac{3}{10} + \frac{4}{10} =$

a 8

b 0.5

c 0.7

d $\frac{7}{10}$

Sum
Exam

7) $\frac{2}{10} + \frac{3}{10} + \frac{9}{10} =$

a 10.5

b 10.4

c 1.4

d 4.1

Unit 11: Graphs

Lessons

1

- Different graphs

Lessons

2 3

- Creating graphs

Bar graph:

- Bar graph is used to compare objects by using bars

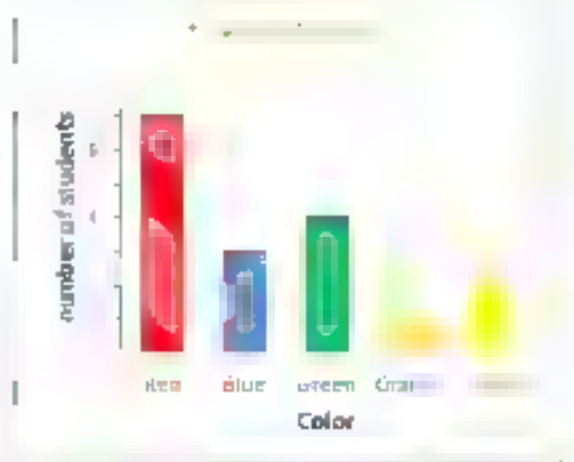
EX

- Favorite (animal – color – sport – food – fruit – season – subject)
- Student marks

Example

Observe the opposite bar graph and answer the following questions:

Color	Number of students
Red	7
Blue	3
Green	4
Orange	1
Yellow	2



- Which is the most favorite color?
- Which is the least favorite color?
- How many students like green?

Red
Orange
4

Line plot:

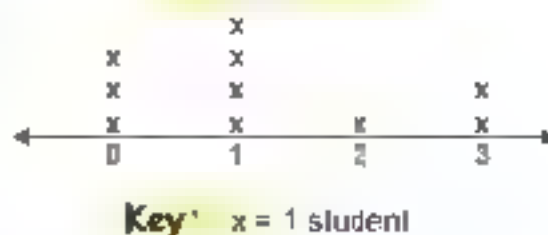
- Line plot is used to show the frequency of data on a number line

EX

- Measurements (Length – time – height – weight – distance)
- Number of (siblings – pets)

Example

siblings	Number of students
0	3
1	4
2	1
3	2



Double bar graph:

- Double bar graph is used to display two sets of data on the same graph using two different colors of bars.

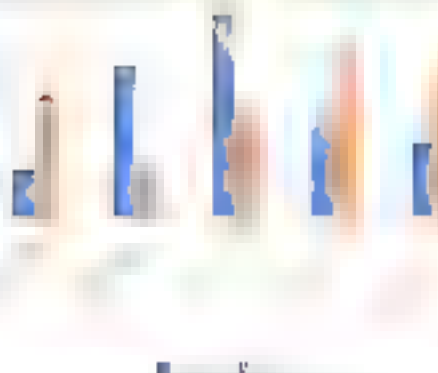
EX

- Favorite (food color subjects) between boys and girls
- Student marks of two subjects

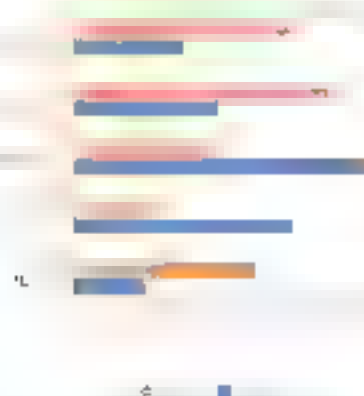
Example

Observe the opposite bar graph and answer the following questions:

Favorite fruit		
Fruit	boys	girls
Apple	2	5
Orange	6	2
Mango	8	4
Banana	4	7
strawberry	3	6



Vertical double bar graph



Horizontal double bar graph

- Which is the most favorite fruit of the girls?
- Which is the least favorite fruit of the boys?
- How many boys like strawberry?
- How many students like orange?

Banana

Apple

3

$6 + 2 = 8$

1. Answer the following

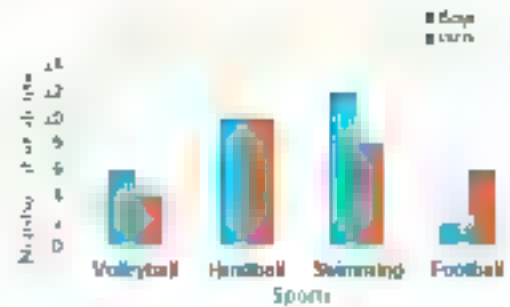
Unit
1, 2, 3, 4

- 1) By using the opposite graph
- How many boys prefer swimming?

- How many girls prefer volleyball?

- Complete the table

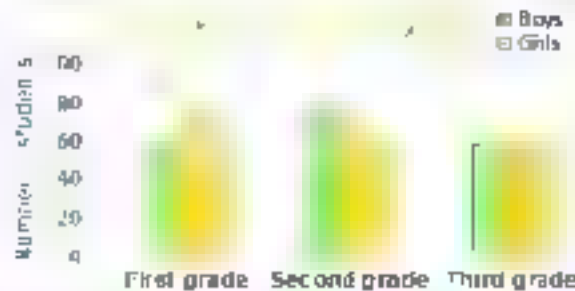
	Volley ball	Hand ball	swimming	football
Boys				
Girls				



Unit
1, 2, 3, 4

- 2) Use the following double bars graph to answer the questions.

- What is the number of boys in first grade?
- What is the number of girls in third grade?
- In which grade the number of boys is equal to the number of girls?



Unit
1, 2, 3, 4

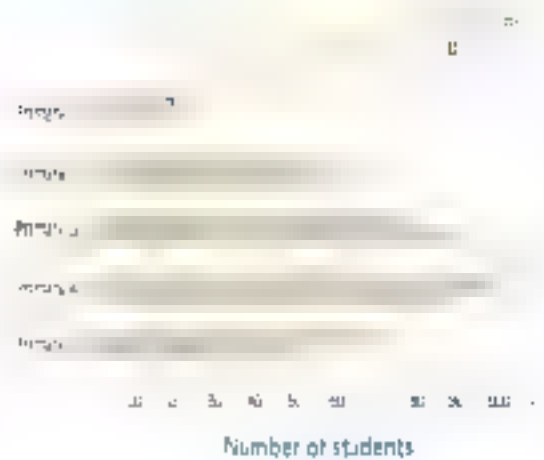
- 3) The following data shows the favorite activities between boys and girls, study the graph then answer the questions

- How many boys liked football?
- How many girls liked swimming?
- Which sports show the same number of boys and girls?



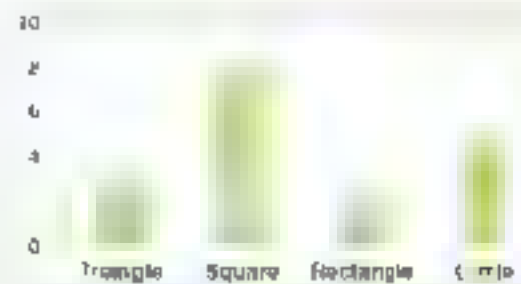
1000
10000

- 4) From the following graph
- Which grade has the same number of students who like fruits and vegetables?
 - What is the total number of the students who like vegetables and fruits in grade 4?
 - Which grade likes vegetables more than fruits?



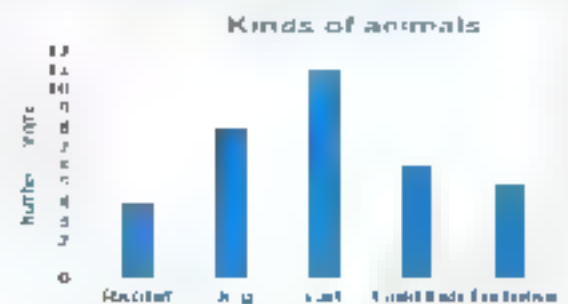
1000
10000

- 5) From the opposite bar graph
- Find the number of squares



1000
10000

- 6) In the following bar graph:
- Find the number of people who liked dog



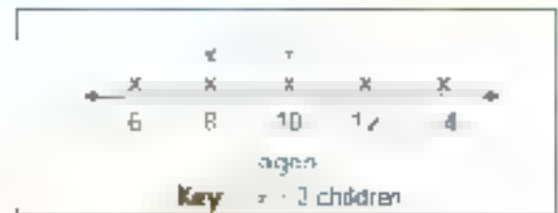
1000
10000

- 7) The following graph shows Ali's marks in math and science over three months.
- In which month does Ali get the greatest mark in science?



8/10
[E=40]

- 8) By using the opposite lie plot Find the number of children whose ages are 10 years old



9/10
[E=40]

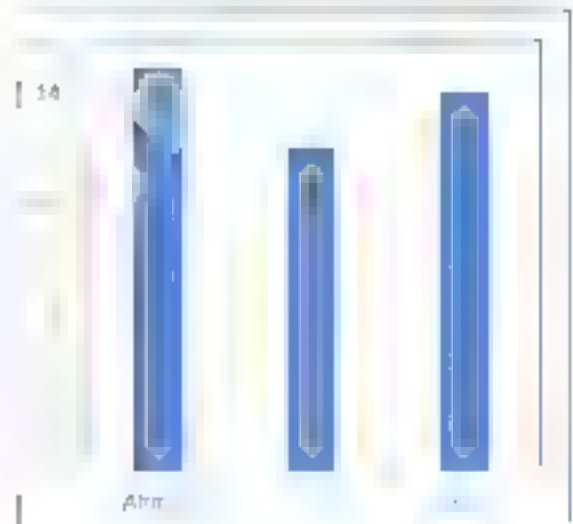
- 9) The table shows the internet usage for four friends in hour. Who use the internet least time?

Name	Saty	lady	Amira	Ali
No of hours	2	1	3	2

10/10
[E=40]

- 10) In the graph: no. of pages read by Ahmed, Ali and Samir, answer the following:

- Who read more than Samir?
- Who read the least pages?
- How many pages were read by all?
- Find the difference between Ahmed and Ali?



11/10
[E=40]

- 11) Write three different ways for representing data.

1.

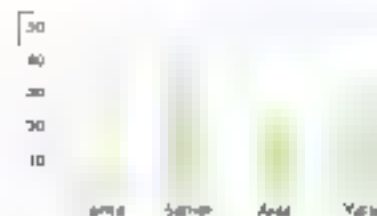
2.

3.

1. Choose the correct answer

1/10
[E=40]

- 1) The opposite graph shows mark for four students which student got lowest mark?



a Farida

b Samah

c Alaa

d Yara

Unit 3

2. The opposite graph shows



a. Pictograph

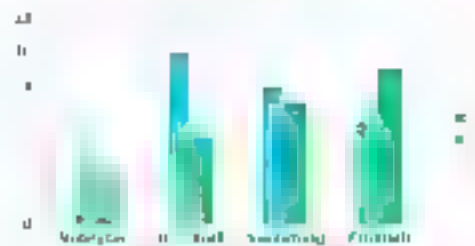
c. Bar graph

b. Line plot

d. Double bar graph

Unit 3

3) The number of girls in handball equals?



a. 4

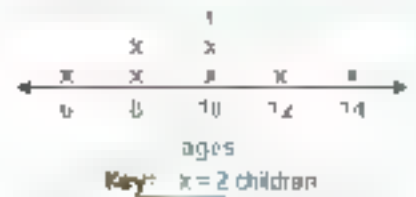
b. 10

c. 7

d. 5

Unit 3

4) The opposite graph shows a



a. Line plot

c. Double bar

b. Pictograph

d. Bar graph

Unit 3

5) Which type graphs is suitable for this data?

Name	All	Ola	Nora
Age	13	17	15

a. Double bar graph

b. Line plot

c. Bar graph

d. pictograph

Unit 3

6) The following table can be represent by

Name	Arabic	Math	Science	English
Boys	10	35	28	40
Girls	25	40	28	30

a. Double bar graph

b. Line plot

c. Bar graph

d. pictograph

Unit 3

7) The horizontal and vertical lines of graph are called

a. Titles

b. Axes

c. Keys

d. Number of sets

QUM

8) Which of the following can be represented by a line plot?

- a. Our favorite movie
- b. Our favorite animal
- c. Our height
- d. Our favorite food

QUM

9) Which of the following can be represent by double bar graph?

- a. Sleeping hours every night
- b. Favorite food
- c. Maximum and minimum temperature in different cities
- d. Length of 5 things on your desk

QUM

10) _____ is the representation of data through individual columns

- a. Bar graph
- b. Double bar graph
- c. Pictograph
- d. Line plot

QUM

11) When the data is number use _____ to represent on the number line

- a. Bar graph
- b. Double bar graph
- c. Pictograph
- d. Line plot

QUM

12) Which of the following can be represented by a double bar graph?

- a. Favorite animal
- b. Our shoe sizes
- c. Marks of friends in Math and Arabic
- d. Favorite color

QUM

13) To represent the number of walking hours for Ahmed and Hassan in one week you can use

- a. Line plot
- b. Double bar
- c. Pictograph
- d. Bar graph

QUM

14) To compare between rain fall in Egypt in the two years 2022 and 2023 we use

- a. Line plot
- b. Double bar graph
- c. Pictograph
- d. Bar graph

How to create a line plot with fractions

- Draw a number line starting with the smallest value and end with the greatest value
- Put "x" above the number to represent each value
- Write the title

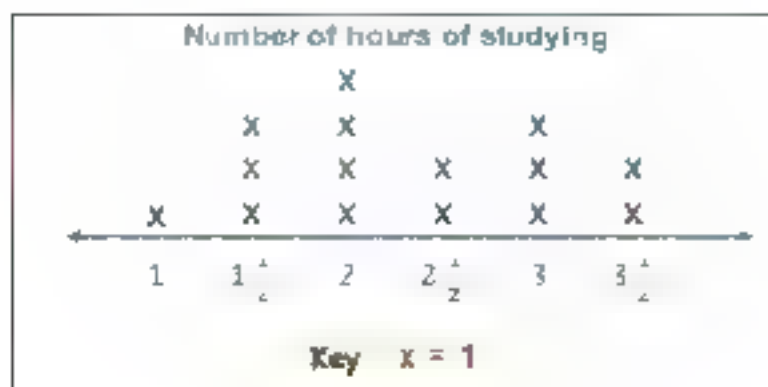
EX

Elias records data about the number of hours spent studying Math and the data as follows

2	$1\frac{1}{2}$	$3\frac{1}{2}$	2	3
$2\frac{1}{2}$	1	3	$1\frac{1}{2}$	2
3	$1\frac{1}{2}$	$3\frac{1}{2}$	2	$2\frac{1}{2}$

Represent the data by a line plot

Sol



How to create a double bar graph:

- Draw two axes
- Write the suitable scale
- Draw the bars according to its values
- Color the bars
- Write the legend
- Write the title of graph

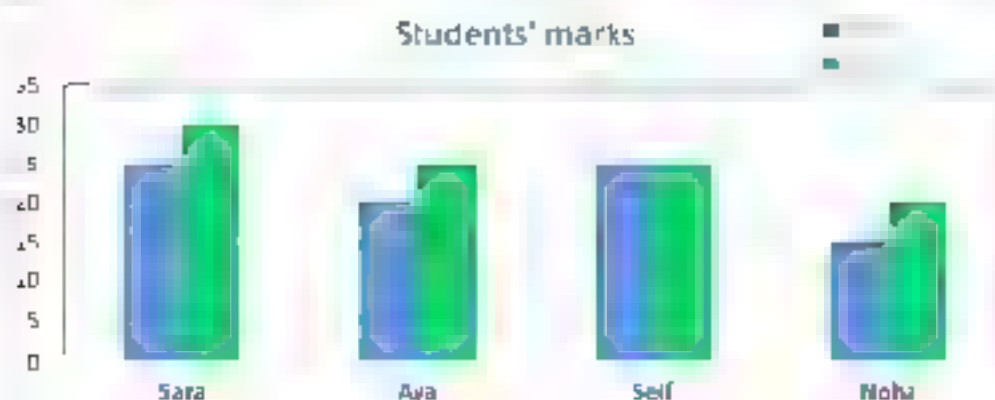
Example

The opposite table shows the marks obtained by the four students Sara, Aya, Seif and Noha in the exam of Math and Science.

Students' marks		
Name of student	Math	Science
Sara	25	30
Aya	20	25
Seif	25	25
Noha	15	20

Represent these data by a double bar graph.

Sol



1. Answer the following

- 1) These data show the distance from home to school for students. The data are given in kilometers.

Create a line plot for the given data.

$\frac{3}{5}$ km	$\frac{2}{5}$ km	$\frac{2}{5}$ km	$\frac{5}{5}$ km	$\frac{4}{5}$ km	$\frac{2}{5}$ km	$\frac{4}{5}$ km	$\frac{5}{5}$ km	$\frac{4}{5}$ km	$\frac{4}{5}$ km	$\frac{1}{5}$ km
------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------

- 2) Kamal recorded the lengths of two types of plants in four days as follow:

	Mon.	Wed.	Fri.	Sun.
Plant (1)	5 cm	$5\frac{1}{5}$ cm	6 cm	$6\frac{1}{5}$ cm
Plant (2)	4 cm	$4\frac{2}{5}$ cm	$4\frac{3}{5}$ cm	5 cm

- a. Use the above data to complete the following graph.



- b. In plant (1), what's the amount of increasing in its length from Monday to Sunday?



- 3) The following table shows number of Liters Nour drank during some days of the week.

Represent data by a bar graph.

Days	Saturday	Sunday	Monday
Liters	$1\frac{1}{2}$	2	3



- 4) Represent the following data by bars:

Student	Distance in meters
Tahani	$1\frac{1}{2}$
Sarah	$1\frac{1}{2}$
Ziad	$1\frac{1}{2}$
Waleed	$1\frac{1}{2}$

Unit 12: Geometry

Lessons

1 · 2

- Geometric concepts
- The relation between two lines

Lessons

3 · 4

- symmetry

Lessons

5 · 6

- Classifying angles
- Drawing angles

Lessons

7 · 8



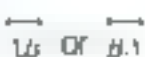




- Classifying triangles
- Drawing triangles

Lessons

9




- Classifying quadrilaterals

Geometric concepts:

point	<ul style="list-style-type: none"> Is exact location in space 		Point A	A
Line (straight line)	<ul style="list-style-type: none"> Goes on forever in two directions Has no endpoints 		Ray AB Or Ray BA	
Line segment	<ul style="list-style-type: none"> Part of line Has two endpoints The shortest distance between two points 		Line segment AB Or Line segment BA	
Ray	<ul style="list-style-type: none"> Part of a line Has starting point and has no end point Extends forever in only one direction 		Ray AB	

- \vec{AB} not the same \vec{BA}

The relation between two lines:

Parallel lines	<ul style="list-style-type: none"> Never intersect 		Line AB parallel to line CD
Intersecting lines	<ul style="list-style-type: none"> Intersects at one point called "point of intersection" 		Line AB intersects line CD
Perpendicular lines	<ul style="list-style-type: none"> Intersects at one point Form four square corners 		Line AB perpendicular to line CD

- All perpendicular lines are also intersecting

1 Complete

40/60
11/12

1) The opposite figure is called 

40/60
12/12

2) The figure  is called

40/60
13/12

3) The figure  is named

40/60
14/12

4) The ray AB is represented by the symbol

40/60
15/12

5) The line AB is represented by the symbol

40/60
16/12

6) the starting point in the opposite figure  is

40/60
17/12

7)  has a starting point and no endpoint

40/60
18/12

8) The two lines  are

40/60
19/12

9) The two lines  are

40/60
20/12

10) The two perpendicular straight lines make  square corners

40/60
21/12

11) The two  lines cannot intersect

40/60
22/12

12) The number of points of intersecting of two parallel lines =

40/60
23/12

13) The number of points of intersecting of two intersecting lines =

2. Answer the following

40/60
1/12

1) Draw the line LM's parallel to the line AB

40/60
2/12

2) Draw the line segment CD parallel to the ray XY

40/60
3/12



3) Draw the line XY's intersects with the ray LM in the point S

40/60
4/12

4) Draw a line segment XY

3 Choose the correct answer

1) The opposite figure  is named as

- a  b  c  d 

2) The name of  is

- a. Line b. Angle c. Ray d. Straight

3) A / An _____ is a part of a line and has two end points

- a. Point b. Line segment
c. Angle d. Straight line

4) The shape that shows a ray is

- a  b  c  d 

5) The opposite lines are

- a. perpendicular b. intersecting c. parallel d. Obtuse

6) The opposite lines are

- a. perpendicular b. parallel
c. intersecting and not perpendicular d. not intersecting

7) Which of the following figures shows two parallel lines?

- a  b  c  d 

8) Which of the following figures shows two perpendicular lines?

- a  b  c  d 

9) The two opposite figures represent _____ lines

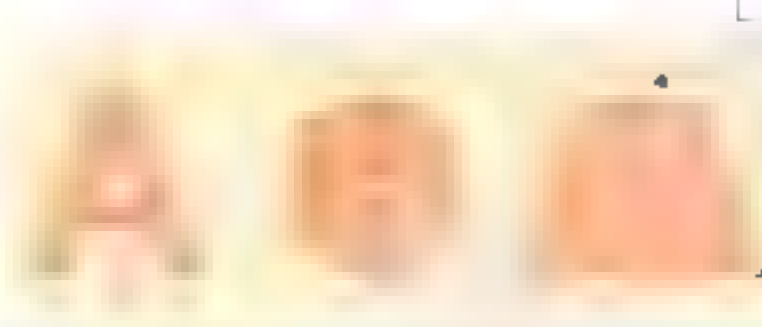
- a. intersecting b. Perpendicular c. Parallel d. Otherwise

Symmetry:

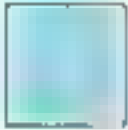

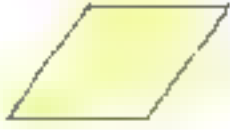
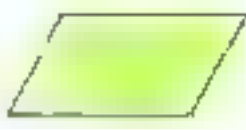
- Symmetrical figure** is the figure can be folded into two congruent parts that fit on top of each other
- Line of symmetry** is the line that divides a shape into two identical parts

EX

Line of symmetry



Notes.

	Square	Rectangle	Rhombus	Parallelogram
Shape				
Number of lines of symmetry	4	2	2	0

1 Choose the correct answer

1) Which of the following shows a line of symmetry?



2) All the following figures show a line of symmetry except



3) has line of symmetry

- a 2 b 0 c 4 d 1

4) The number of lines of symmetry that can be drawn in the opposite figure is

- a 4 b 3 c 2 d 1

5) All the following symbols has line of symmetry except

- a W b A c M d F

6) The number of lines of symmetry of the rectangle is

- a 0 b 1 c 2 d 4

7) The number of lines of symmetry of the symbol X =

- a 1 b 2 c 3 d 4

2 Answer the following

1) Draw one line of symmetry of each figure

1

The angle:

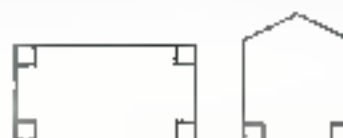
- Angle formed from two rays have the same end points,
- The common endpoint is called vertex
- The two rays are called sides of the angle



Kinds of angles:

Right angle	Acute angle	Obtuse angle
<p>Formed from two perpendicular rays</p>	<p>Less than right angle</p>	<p>Greater than right angle</p>

- For any polygon:
Number of sides = number of angles



- Blue angles obtuse angles
- Red angles acute angles



Drawing angles:

Right angle	Acute angle	Obtuse angle

1. Complete

- 1) The opposite angle represents _____ angle
- 2) The opposite angle represents _____ angle
- 3) The opposite angle represents _____ angle
- 4) An _____ angle less than right angle
- 5) An _____ angle more than right angle
- 6) The number of acute angles in the opposite figure is _____



2. Choose the correct answer

- 1) Which figure shows a right angle?

a

b

c

d
- 2) The opposite figure is representing _____ angle




a Acute
b Obtuse
c Right
d Straight
- 3) The measure of the acute angle _____ The measure of right angle

a >
b <
c =
d Otherwise
- 4) The measure of the acute angle _____ The measure of obtuse angle


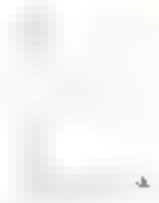

a >
b <
c =
d Otherwise
- 5) _____ angle is less than right angle in measure

a Acute
b Obtuse
c Right
d Straight

Classifying triangles by lengths of their sides:

Equilateral triangle	Isosceles triangle	Scalene triangle
		
<ul style="list-style-type: none"> All three sides are equal in length 	<ul style="list-style-type: none"> Two sides are equal in length 	<ul style="list-style-type: none"> No sides are equal in length

Classifying triangles by measure of their angles:

Acute triangle	Right triangle	Obtuse triangle
		
<ul style="list-style-type: none"> All three angles are acute angles 	<ul style="list-style-type: none"> One right angle Two acute angles 	<ul style="list-style-type: none"> One obtuse angle Two acute angles



Notes:

- Equilateral triangles are always acute triangles
- Any triangle has at least 2 acute angles
- Equilateral triangle has 3 lines of symmetry
- Isosceles triangle has 1 line of symmetry
- Scalene triangle has no line of symmetry

1. Complete

- 1) The _____ triangle has no equal sides
- 2) In an equilateral triangle, there are three sides are _____ in length
- 3) The triangle with equal sides is called _____ triangle
- 4) The triangle has two equal sides is called _____ triangle
- 5) The triangle that its sides are 3 cm, 3 cm and 5 cm is called _____
- 6) The triangle that its sides are 5 cm, 5 cm and 5 cm is named _____
- 7) The type of triangle whose side lengths are 4 cm, 5 cm and 6 cm is _____
- 8) ABC is an equilateral triangle where AB = 4 cm, then BC = _____ cm
- 9) A triangle whose side lengths are 8 cm, 8 cm and _____ cm is an equilateral triangle
- 10) Any triangle has at least _____ acute angles
- 11) Number of sides of the right triangle is _____ sides
- 12) Number of lines of symmetry of an equilateral triangle is _____
- 13) The type of the opposite triangle is _____ angle triangle
- 14) The opposite figure is _____ Triangle according to its angles

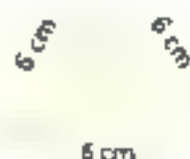
2. Choose the correct answer

- 1) The triangle  is _____ triangle
a Acute b Right c Obtuse
- 2) The opposite triangle is _____ triangle 
a Right b Acute c Obtuse d Equilateral

- 3) The opposite triangle is _____ triangle
- a Right b Acute c Obtuse d Equilateral
- 4) The opposite triangle has _____ Right angle
- a 0 b 1 c 2 d 3
- 5) The equilateral triangle has _____ equal side
- a 0 b 1 c 2 d 3
- 6) The isosceles triangle has _____ equal sides
- a 0 b 1 c 2 d 3
- 7) The triangle has different sides is called _____
- a isosceles b Scalene c Equilateral d Otherwise
- 8) Any triangle has at least _____ acute angle
- a 1 b 2 c 3 d 4
- 9) The scalene triangle has _____ equal sides
- a 0 b 1 c 2 d 3
- 10) _____ Triangle has 3 equal sides
- a Scalene b Isosceles c Equilateral d Right
- 11) The triangle of side length of 5 cm, 6 cm, 7 cm is called _____
- a isosceles b Scalene c Equilateral d Otherwise

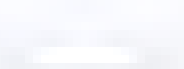


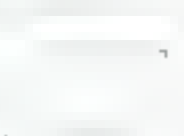
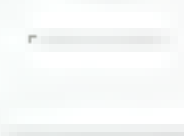
3. Answer the following

- 1) 1) the type of the opposite triangle according to its angles
2) the perimeter of triangle = _____ cm



Classifying quadrilaterals:

- **Parallel lines** the lines can go on forever and never intersect
- **Quadrilateral** is a polygon which has 4 sides
- **Parallelogram** is a quadrilateral which has each two opposite sides are equal in length and parallel
- **Pair of sides** each two sides

Name	Shape	Parallel sides	Length of sides	Angles
Square		• 2 pairs of parallel sides	• All sides are equal	• All angles are equal
Rectangle		• 2 pairs of parallel sides	• 2 pairs of equal sides	• All angles are equal
Rhombus		• 2 pairs of parallel sides	• All sides are equal	• 2 pairs of equal angles
Parallelogram		• 2 pairs of parallel sides	• 2 pairs of equal sides	• 2 pairs of equal angles
Trapezium		• 1 pair of parallel sides		

Notes:

- The square has 4 right angles
- The rectangle has 4 right angles
- The polygon which has 4 sides is called quadrilateral

1. Complete

Equal
[Equal]

1) The square has _____ right angles

Equal
[Equal]

2) The rectangle has _____ right angles

3) The _____ has only one pair of a parallel sides

Equal
[Equal]

4) The quadrilatera that has 4 equal sides and 4 right angles is called _____

Equal
[Equal]

5) All of the following , , ,  are quadrilaterals except _____

Equal
[Equal]

6) The parallelogram which its angles are right is _____

Equal
[Equal]

7) The following shape  is called _____

2. Choose the correct answer

Equal
[Equal]

1) The quadrilatera that has equal sides with 4 right angles is a

- a Rectangle b Square c Trapezium d Rhombus

Equal
[Equal]

2) A square has

- a 2 acute angles b 4 right angles
c 4 different angles d 2 obtuse angles

Equal
[Equal]

3) A parallelogram has

- a 4 right angles b 4 equal sides
c 1 pair of parallel sides d 2 pair of parallel sides

Equal
[Equal]

4) A rectangle has _____ right angles

- a 2 b 3 c 4 d 1

Equal
[Equal]

5) A rhombus has _____ equal sides

- a 0 b 1 c 2 d 4

Equal
[Equal]

6) A square has _____ equal sides

- a 3 b 4 c 5 d 6

- 7) The _____ has one pair of two parallel sides
a Trapezium b Parallelogram c Rhombus d Square
- 8) _____ has 4 right angles
a Rectangle b Parallelogram c Rhombus d Trapezium
- 9) _____ is a rectangle with 4 equal sides
a Square b Parallelogram c Rhombus d Trapezium
- 10) The polygon which has 5 sides is called
a Quadrilateral b Pentagon c Hexagon d Octagon
- 11) The parallelogram which has 4 equal sides is a
a Trapezium b Rectangle c Square d Rhombus

Unit 13: Angles of a circle

Lessons

1

- **Types of angles in a circle**

Lessons

2

- **Measuring angles using a circle model**

Lessons

3 4

- **Measuring angles using a protractor**

Lessons

5 7




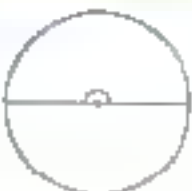
- **Drawing angles using a protractor**
- **Classifying triangles using geometric tools**

Types of angles in a circle:

- Degree is a unit of measuring angle and its symbol " $^{\circ}$ "
- There are 360 degrees in a circle

angle

Classifying the angles by their measurements

Acute angle	Right angle	Obtuse angle	Straight angle
			
$0^{\circ} < \text{Acute} < 90^{\circ}$	90°	$90^{\circ} < \text{Obtuse} < 180^{\circ}$	180°

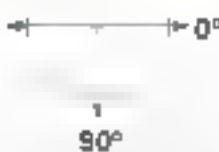
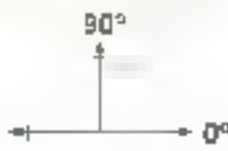
Notes:

- There are 360° in a circle
- The circle has 4 right angles
- The right angle is representing $\frac{1}{4}$ of a circle
- The straight angle is representing $\frac{1}{2}$ of a circle



Directions of drawing angles on a circle:

To draw any angle on the circle there are two directions we can use as follow:

• Move clockwise	• Move counter clockwise
	

- 0° is always the starting point
- 360° means a full rotation

1. Complete

- 1) The measure of acute angle is less than 90°
- 2) The measure of right angle = 90°
- 3) The measure of straight angle is 180°
- 4) \angle measures between 0° and 90°
- 5) The angle whose measure 90° is right angle
- 6) The angle which its measure 30° is acute angle
- 7) The angle with measure 65° is acute angle
- 8) The angle which its measure 120° is called obtuse angle
- 9) The angle which its measure 170° is obtuse angle
- 10) 84° is classified as acute angle
- 11) The measure of the central angle which represents $\frac{1}{4}$ of a circle is 90°
- 12) $\frac{1}{4}$ of the opposite circle measured 90°

2. Move from 0° in the given direction and draw a right angle. Then, label 90° and 180° degrees on each circle



3. Choose the correct answer

- 1) Which of the following figures shows a $\frac{1}{2}$ of full rotation

a

b

c

d


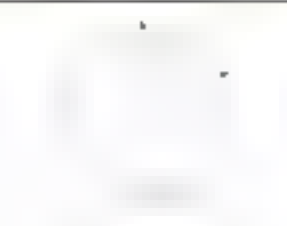
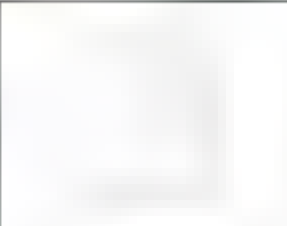
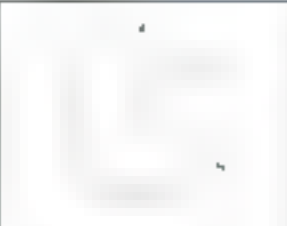

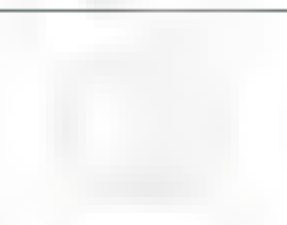
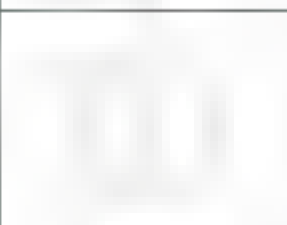
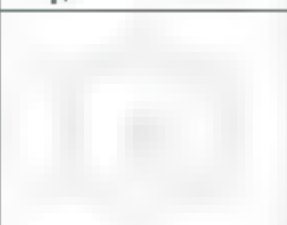
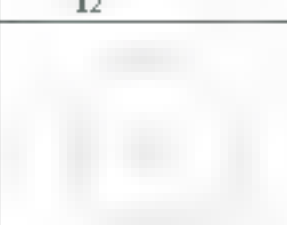
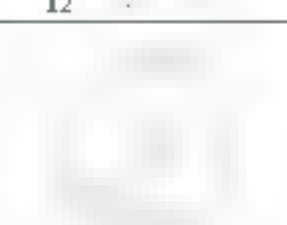

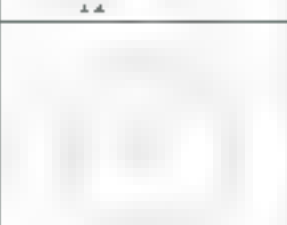
- 2) The measure of straight angle is _____ the measure of the circle
- a. $\frac{1}{2}$ b. $\frac{1}{3}$ c. $\frac{1}{4}$ d. $\frac{1}{5}$
- 3) There are _____ degrees in a circle
- a. 360° b. 180° c. 25° d. 90°
- 4) The circle can be divided into _____ right angles
- a. 1 b. 2 c. 3 d. 4
- 5) The angle whose measure is less than 90° is _____ angle
- a. Acute b. Straight c. Right d. Obtuse
- 6) Which is a measure of an acute angles?
- a. 40° b. 90° c. 120° d. 180°
- 7) The measure greater than 0° and less than 90° is a measure of _____ angle
- a. Acute b. Straight c. Right d. Obtuse
- 8) The angle whose measure is 99° is called _____ angle
- a. Acute b. Straight c. Right d. Obtuse
- 9) _____ angle measures between 90° and 180°
- a. Acute b. Straight c. Right d. Obtuse
- 10) The right angle measure exactly _____ $^\circ$
- a. 90 b. 30 c. 0 d. 61
- 11) The measure of straight angle is _____ $^\circ$
- a. 108 b. 118 c. 180 d. 90
- 12) The angle which its measure 88° is called _____ angle
- a. Acute b. Right c. Obtuse d. Reflex

Angles on a clock face:

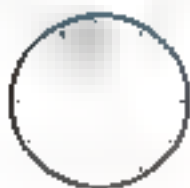
- The measure of a circle is 360°
- We divide a clock face into 12 equal angles
- Each angle represents $\frac{1}{12}$ of the circle
- The measure of each angle is equals to 30°



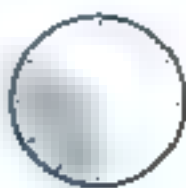
Fractions and angles on a clock:

 $\frac{1}{12}$ 30°	 $\frac{2}{12}$ 60°	 $\frac{3}{12}$ 90°	 $\frac{4}{12}$ 120°
 $\frac{5}{12}$ 150°	 $\frac{6}{12}$ 180°	 $\frac{7}{12}$ 210°	 $\frac{8}{12}$ 240°
 $\frac{9}{12}$ 270°	 $\frac{10}{12}$ 300°	 $\frac{11}{12}$ 330°	 $\frac{12}{12}$ 360°

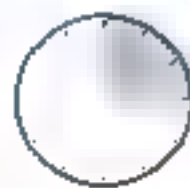
1 Write the measure of colored angle in degree



o



D



D

2. Color to represent the suitable angle of each fraction



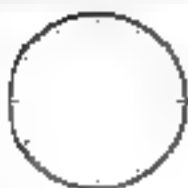
$\frac{2}{12}$



$\frac{3}{12}$



$\frac{8}{12}$



$\frac{1}{4}$



$\frac{1}{2}$



$\frac{1}{3}$

3. Choose the correct answer

1) The angle which represents the colored part equals ...



a 30°

b 60°

c 90°

d 120°

2) The angle which represents the colored part =



a 60°

b 120°

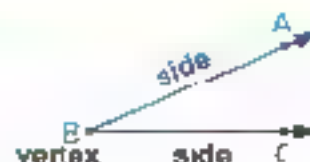
c 90°

d 300°

- 3) The angle which represents the colored part equals
- a 150° b 170° c 100° d 90°
- 4) The fraction $\frac{1}{12}$ of a circle makes an angle of measure _____ degrees
- a 30° b 600° c 90° d 120°
- 5) $\frac{1}{12}$ of a circle measured
- a 60° b 90° c 180° d 360°
- 6) $\frac{1}{3}$ of a circle measured
- a 0° b 120° c 100° d 360°
- 7) Measure of the angle which represents $\frac{1}{4}$ of the circle = _____
- a 90° b 180° c 270° d 360°
- 8) Which is a measure of an acute angles?
- a 40° b 90° c 120° d 180°
- 9) The fraction $\frac{5}{12}$ makes an angle of measure
- a 90° b 150° c 210° d 300°
- 10) The angle which measures 360° represents a fraction of
- a $\frac{1}{2}$ b $\frac{3}{4}$ c $\frac{12}{12}$ d $\frac{4}{10}$
- 11) The related fraction to the angle of measure 180° is of a circle
- a $\frac{1}{6}$ b $\frac{1}{4}$ c $\frac{1}{3}$ d $\frac{1}{2}$

• Naming angles:

- The angle is formed from two rays that have the same end point
- The common end point is called **vertex**
- \angle is the symbol of the angle and read as angle
- We write the angle by three ways as follows
 - ✓ $\angle ABC$
 - ✓ $\angle CBA$
 - ✓ $\angle B$



• Measuring angles by protractor:

To measure an angle using a protractor, follow the steps below:

- 1 Line up the vertex of the angle with the dot at the center of the protractor
- 2 Line up one side of the angle with 0 degrees on the protractor
- 3 Read the protractor to see where the other side of the angle crosses the number scale



This angle measures 120 degrees or 120°

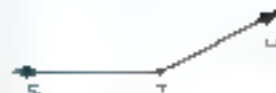
1. Write the name of each angle



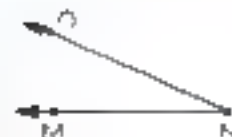
Name 1:
Name 2:
Name 3:



Name 1
Name 2
Name 3

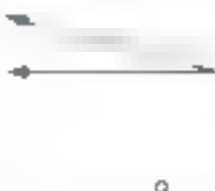
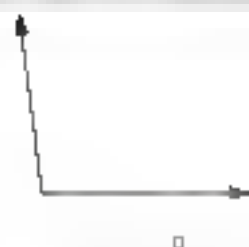


Name 1
Name 2
Name 3



Name 1
Name 2
Name 3

2. Measure each angle by using protractor



3. Answer the following



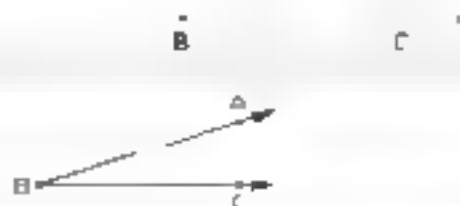
1) Use the opposite angle to answer the questions:

- Its name is \angle
- Its type is
- Its measure is



2) In the opposite figure:

- Name of angle
- Angle type is



Find
(2x3)

3) In the opposite figure:

- Its measure is
- Its type is

Find
(2x1)

4)

- Name of angle \angle
- Type
- Measure degrees

Find
(2x1)

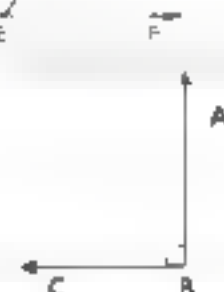
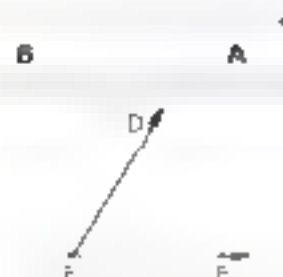
5) In the opposite figure:

- The name of the angle is
- The type of the angle is
- The measure of the angle =

Find
(2x1)

6) Complete:

- \angle is an acute angle
- \angle is an obtuse angle

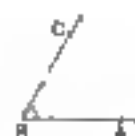


4 Choose the correct answer

Find
(2x1)

1) The vertex of the opposite angle is

- A
- B
- C
- Otherwise



Find
(2x1)

2) The vertex of $\angle ABC$ is

- A
- B
- C
- Otherwise

Find
(2x1)

3) The _____ is formed by two rays that have the same endpoint

- Point
- Side
- Angle
- vertex



4) One of sides of the angle RHS is

a. \overrightarrow{RH}

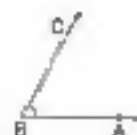
b. \overrightarrow{HR}

c. \overrightarrow{RS}

d. \overrightarrow{SH}



5) The name of the opposite angle is



a. $\angle CAB$

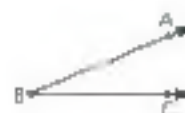
b. $\angle CBA$

c. $\angle BAC$

d. $\angle ACB$



6) The name of the opposite angle is



a. $\angle CAB$

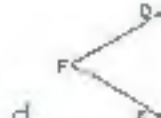
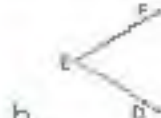
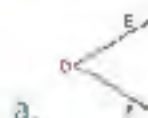
b. $\angle CBA$

c. $\angle BAC$

d. $\angle ACB$



7) Which angle is named as DEF ?



- Drawing angles using a protractor
- Classifying triangles using geometric tools

🔦 Drawing angles by protractor:

Ex: Use the protractor to draw an angle with measure of 120°

Start on the right. Use the numbers along the inside of the protractor since they also start on the right. Follow these numbers, and stop when you get to 120°



Step (1)



Step (2)



Step (3)

🔦 Classifying triangles by lengths of their sides:

Equilateral triangle	Isosceles triangle	Scalene triangle
<ul style="list-style-type: none"> • All three sides are equal in length 	<ul style="list-style-type: none"> • Two sides are equal in length 	<ul style="list-style-type: none"> • No sides are equal in length

🔦 Classifying triangles by measure of their angles:

Acute triangle	Right triangle	obtuse triangle
<ul style="list-style-type: none"> • All three angles are acute angles. 	<ul style="list-style-type: none"> • One right angle. • Two acute angles. 	<ul style="list-style-type: none"> • One obtuse angle. • Two acute angles.

1. Use the protractor to draw an angle with the given measurement:



1)

90°



2)

100°



3)

60°



4)

110°



5)

30°



6)

50°



7)

80°



8)

120°



- 9) By using the protractor:
draw the angle with measure 60° , then determine its type.



- 10) By using the protractor:
draw the angle with measure 90° , then determine its type.



- 11) Draw $\angle ABC$ with measure 80° , and write its type.



- 12) By using the protractor:
draw $\angle ABC$ with measure 70°

- 13) By using geometric instrument find:
a. Type of $\triangle ABC$ with respect to its sides
b. Type of $\triangle ABC$ with respect to its Angles



- 14) In the triangle XYZ, $m(\angle X) = 40^\circ$, $m(\angle Y) = 40^\circ$ and
 $m(\angle Z) = 100^\circ$.
Write the type of the triangle according to its angles.